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ABSTRACT

This document addresses itself to designing and conducting the various aspects of planning a comprehensive environmental education program. The intent is to provide a methodology to be used as a guide for those responsible for developing statewide environmental education programs. Among the various components are background information on the growth of the concept of environmental education, previous planning efforts, controversial issues regarding environmental education planning, an illustrative model of the planning process which includes assessment considerations and techniques for determining goals and objectives of both the planning process and the resulting program, strategies for successful planning and/or implementation, suggestions for developing a system of evaluation, and a summary statement of the new directions of various environmental programs. The appendixes provide specific examples of information guidelines for state plan proposals, names and addresses for state planning contacts, and a variety of references thought to be useful to a potential planner. (MLB)

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PLANNING FOR ENVIRONMENTAL EDUCATION:

THE NATION'S EXPERIENCE 1970-73

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December 1973

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Preface

In the second year of the Environmental Education Act of 1970 (Public Law 91-516), the U. S. Office of Education (USOE) designated Colorado's statewide planning program a national demonstration project because of the participative nature of its approach. As a result, a grant was awarded to the Center for Research and Education (CRE), acting for a Colorado citizen advisory group, to provide technical assistance to other states in their planning efforts.

In rendering technical assistance, members of the Center for Research and Education staff made consultative visits to five states, the District of Columbia and the Tennessee Valley Authority. Planners from four states visited Colorado for consultation. Technical assistance was also provided to people from 36 states through in-service training sessions conducted at five regional conferences. Finally, two years of telephone conversations and correspondence provided contact with countless individuals around the country.

This document will attempt to achieve two major purposes.

It became increasingly apparent that people needed some written materials as a guide in designing and conducting various aspects of a comprehensive planning effort. The need was especially critical in view of the fact that in the vast majority of cases the people responsible for statewide master planning were not planners by training or experience.

While there is a great deal of written material, it was clear that to be useful to the planning generalist such material must be practical while addressing itself to the special conditions of comprehensive planning for something as intangible as social services. It should provide examples as well as access to a variety of additional information. Nor should such material be limited to one approach, but rather include the planning experience of people with a variety of interests and backgrounds. This document is our attempt to meet these needs.

The second purpose is to record the experience of those states that undertook to develop a master plan for environmental education. It is hoped that this appraisal will be of some assistance to USOE's Office of Environmental Education in its efforts to evaluate the costs and benefits and the impact of these planning endeavors.

It is hoped that this document will also make a contribution to the attempt to define environmental education and to determine what some of the future directions in this field should be.

The book is divided into five major sections. If you want to gain a general, overall perspective on environmental education planning, you probably should read each chapter as it appears. If you have been closely involved in the planning process and your present interest is more narrowly focused, you may want to skip some of the background and read specific chapters.

Part I provides some background information which we believe will be helpful in putting the rest of the book into proper context. It includes a discussion of the legislation enacted as a result of the national priority placed on environmental education and a glossary of terms which will be used throughout the report.

Part II presents some controversial issues to be considered in making the decision whether or not to launch a state planning effort.

Part III describes the systematic planning process which we are using as the framework to discuss all the implications of environmental education planning. It deals with what we do and why. Part IV concentrates on how to move through the steps of the planning process.

Part V attempts to evaluate how far we've come as a result of the planning effort during the past several years -- and to speculate on how to advance the state of the art.

Much of the information presented here was gathered during the technical assistance experience just described. In an attempt to bring some synthesis to the effort and to add some objectivity, four other activities were undertaken specifically to help us in preparing this book.

A questionnaire was circulated to planners in 42 states around the nation asking them to share their experience. This was followed by a national conference in Estes Park, Colorado in May of 1973 where planners from 20 states and 10 members of the National Advisory Council produced a volume of information which is incorporated here as well. A number of grant application proposals for state planning and 21 Master Plan documents have been reviewed. Finally, key sections of the draft of this report were circulated among a representative group of state planners for additional comments and insights.

For the serious student who may be concerned about the research validity of this work, we want to make it clear from the outset that this is not the report of a research study. It is largely the work of the authors in summarizing their own experience and in synthesizing the ideas provided by scores of others.

We wish to express here our sincere appreciation to all those who contributed by providing us with information, and to the following people who gave us direct counsel concerning the contents of this book: Jon Wert, David Walker, B. Ray Horn, Jack Hershey, and Bill Stapp. Special thanks go to Lee West, a graduate student at the University of Colorado specializing in urban planning, who studied and summaried all the paper work -- the proposals, the master plans, the questionnaires, and the work done at the Conference.

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Denver, Colorado
December 1973

PART I

THE BACKGROUND

CHAPTER 1.

ENVIRONMENTAL EDUCATION PLANNING

In recent years an increasing concern about environmental conditions has become evident -- including what we are or are not doing to define them and to prevent or solve them. A lot of work has been done in conservation education and outdoor education, which laid the groundwork for the content and the process of present day environmental education. However, only during the past seven to ten years has there been a specific emphasis on environmental education itself, and only during the past three to five years has there been any real emphasis on environmental education planning. In fact, the whole field of comprehensive planning for any area of education is little more than five years old.

On a nationwide basis, the passage of the Environmental Education Act in the fall of 1970 was the single greatest boost given to this entire field.

The Environmental Education Act of 1970 (Public Law 91-516)

The purpose of the Act was to encourage and support individual states during the ensuing three years in initiating and developing environmental education programs to improve the quality of the environment and maintain ecological balance. Suggested activities included:

- Development and dissemination of new and improved curricula through model education programs.
- Provisions for supporting the initiation and maintenance of programs in environmental education at the primary and secondary school levels.
- Provisions for pre-service and in-service training for teachers, non-educational personnel such as community leaders, government employees, etc.
- Provisions for supporting outdoor ecology study centers, community education programs, and the preparation and distribution of materials by the mass media.
- Comprehensive statewide program development.

It is with the state planning aspect that this report primarily deals.

Environmental education was defined as "the educational process dealing with man's relationship with his natural and man-made surroundings, and including the relation of population, pollution, resource allocation and depletion, conservation, transportation, technology, and urban and rural planning to the total human environment."

The Act provided for an office of environmental education to be housed in the U. S. Office of Education (USOE) to administer the program, to coordinate all USOE activities relating to environmental education, and to assist the Commissioner in reviewing proposals and deciding on their funding. A National Advisory Council on Environmental Education, consisting of 21 members representing both the public and private sectors, was also established to advise the Secretary of the Department of Health, Education and Welfare regarding the various administrative and operational aspects of the law. The Council was expected to review and make recommendations regarding funding priorities and the criteria for making funding decisions, and to review the administration, operation and effectiveness of the projects operating under the auspices of the Act.

The Office of Environmental Education (OEE)

The Office of Environmental Education has provided three basic elements to the statewide planning efforts:

First, it funded twelve states during the past two fiscal years (1971-72 and 1972-73) specifically for the development of environmental education master plans. In this capacity it also helped give shape and direction to the effort by setting out guidelines for how the grant money was to be used.

Second, it provided technical assistance to those at the state and local level engaged in planning activities. This became more focused during the second year; in addition to the consulting work of its own staff, it designated Colorado's planning program a national demonstration project and funds were made available, through the Center for Research and Education, to give both direct and indirect assistance to other states.

Third, it helped produce a synergism of effort toward environmental education generally, i.e., interagency cooperation at the federal level and new partnerships with state and local agencies.

Initially, OEE put a great deal of emphasis on the preparation of state plans. The guidelines for preparing grant proposals helped put their expectations into perspective. Those sections pertaining to statewide planning have been excerpted and included in Appendix A. In summary, the major provisions were:

- A state plan should be dynamic and flexible enough to respond continuously to the needs of the people in the state, responsive to all age levels.
- It should document and make use of the existing and potential resources in the state, including curriculum materials, facilities, funds, personnel, and information concerning the environment.
- It should be an overall education plan utilizing both formal and non-formal educational systems.
- It should describe the needs and priorities in implementing the plan.
- It should be useful to a variety of agencies and organizations in identifying their best means of providing assistance.
- The planning group should involve a task force composed of representatives of statewide constituencies in elementary and secondary education, higher education, conservation, health and environmental protection agencies, private educational and environmental organizations, broadcasting, business, labor and industry and should therein reflect the educational and environmental resources of the state.
- Evidence must have been presented which indicated that a statewide task force had been formed and that it had: (a) the support of the major environmental and educational resources in the state; (b) selected its own chairman and (c) made provisions for the establishment of goals and rules for the group.

During the course of time OEE's funding priorities shifted. This fact becomes an important piece of background information when assessing the present state of the art in statewide planning efforts.

The initial importance of state planning is best demonstrated by the following quotations from their grant application guidelines in 1971 and 1972:

> Although not required for funding under the Environmental Education Act during fiscal years 1971 and 1972, implementation of projects of significant impact should await the development of State plans.

> At the Federal level, priority will be given to special evaluation and dissemination activities which are part of a State commitment.[1]
>
> Environmental Education Act funds are available to assist statewide evaluation and dissemination activities connected with State plan development. Although not required for funding under the Environmental Education Act during fiscal years 1971 and 1972, implementation of projects of significant statewide impact should await the development of State plans.[2]

These statements led most state planners and many others to believe that the chances for obtaining grant money for their environmental education programs would be enhanced if the state had a master plan under way. By the same token, many were reluctant to proceed with any proposals for major environmental education programs without a state plan, and in some cases used the above statements to help convince others at the state level that a master plan should be formulated. The result was that a great many people throughout the nation developed the expectation that if, by whatever means, they developed a state plan additional funding would follow. These expectations have not been fulfilled.

The grants awarded for comprehensive state planning in 1971 and 1972 were subsequently treated as pilot demonstration programs, even though the grant application guidelines did not indicate that intention, and no provision for state planning was made in the 1973 guidelines. Further, although some individual pilot projects received grants, no funds from PL 91-516 have been made available to individual states to help implement the overall program outlined in their master plans. Only New Jersey has been granted any money to support programs arising directly from their Master Plan; and that money came from USOE Title III discretionary funds, not from PL 91-516.

No written explanation about OEE's change in emphasis has appeared, but in conversation they indicated that the state plans they funded were, in effect, pilot projects and that there was no need for additional planning demonstrations. A second explanation was that the purpose of a state plan was to organize the state and get it motivated toward environmental education, including finding its own resources. A third had to do with the fact that Congress did not appropriate anywhere near the amount of money anticipated for environmental education, and the Office of Environmental Education therefore had to determine a new set of priorities.

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[1] U. S. Dept. of Health, Education and Welfare, Office of Education, Office of Priority Management, Environmental Education Act (Public Law 91-516) Handbook on Preparing Proposals, March 1971.

[2] U. S. Dept. of Health, Education and Welfare, Office of Education, Environmental Education Act (Public Law 91-516) Handbook on Preparing Proposals, October 1971.

Planning Efforts Prior to the Act

While the Act added impetus to initiate statewide planning for environmental education, ten states had their own planning programs under way prior to the passage of the Act (California, Colorado, Florida, Illinois, Minnesota, New Jersey, New York, Ohio, Oregon, and Washington). In most cases these efforts were organized by a directive from the state legislature, the governor, or state department of education. In some cases, however, pressure by citizens, private and public groups or organizations became the catalyst.

Some of the early planning efforts dealt with developing or expanding conservation education programs in the public school system (e.g., California). Others called for the state departments of education and natural resources to work together to develop an environmental/conservation program for the school system and the general public (e.g., Washington). In some cases, the state department of education provided guidelines for environmental education by utilizing federal grants such as the Elementary and Secondary Education Act of 1965, Title III (e.g., Florida). Other states used a group or organization to develop long-range planning and programming efforts to improve the general environmental quality in the state and to deal with environmental education as one aspect of this effort (e.g., Minnesota).

In New Jersey, a state council for environmental education was established in 1967 and, under a State grant, a master plan completed by 1970. The first comprehensive state plan in the nation, it was heavily funded for implementation under Title III-306, USOE discretionary funds, beginning in mid-1971.

Summary of the Situation Today

To the best of our knowledge, there are 28 states, plus the District of Columbia and the Tennessee Valley Authority, presently engaged in planning or in attempting to implement a plan. Twelve of these were awarded grants from PL 91-516 in 1971 and 1972 for the development of master plans (Alabama, Colorado, District of Columbia, Hawaii, Massachusetts, Michigan, Minnesota, New Hampshire, New York, North Carolina, Texas, and Wisconsin). Four received grants in both years (Colorado, Massachusetts, Minnesota, and Texas). No state plans were funded in 1973.

A summary sheet, showing the states involved in planning and the extent of their progress, is included at the end of this chapter (p. 10). We have reviewed 21 state plan documents for this study -- all those, again to the best of our knowledge, that have been published so far. Summaries of these plans are included in Appendix B, along with a list of contact persons in each state from whom copies of the plans or other information can be obtained.

A variety of reasons have been given for undertaking the task of preparing an environmental education master plan. It was recognized generally that for any major project to be successful an effective planning effort had to be made; but primarily, those responsible for preparing master plans indicated that it was considered the most effective way to promote environmental education in the state. Some planners indicated that motivation was based on the pressure exerted by various interests in the state to initiate a coordinated planning effort. Others indicated they were motivated by the strong possibility of receiving federal grant money for environmental education projects once such a plan was adopted.

Planners hoped that through statewide planning they could coordinate the efforts of all those dealing with environmental education, thus avoiding duplication of effort. They also hoped that through planning the scope of their program would be comprehensive and long range. A master plan, therefore, was seen as a blueprint -- subject to modification and revision as needs changed -- for implementing their program.

Another reason for the planning effort was to "turn on" the state to environmental education and to motivate and get moving those agencies, organizations and individuals who already had some responsibility for it, including the reordering of their priorities and their budgets. It was also hoped in some states that the planning effort would itself be a form of environmental education.

Finally, a major motivating force for the planning effort was to set in motion a process for providing continuous leadership for environmental education within the state and to provide a mechanism for continuing to assess state environmental education needs, to evaluate accomplishments, and to up-date the recommendations to reflect this new data.

The planning process, and the state plan documents produced, vary greatly from one state to another. The differences are partly accounted for by the kinds of problems characteristic of the state and the unique goals and areas for priority consideration and partly by the different needs and aspirations of the planning participants.

There are also commonalities. Planning in most states was directed toward a mixture of formal and non-formal education. As an aid in the planning process, and ultimately in the implementation of their plan, nearly all states took steps to assess the existing environmental education projects and resources, identify needs and areas for priority consideration, and provide programming recommendations. These findings were then used as guidelines for the remainder of the planning effort and the development of the plan itself.

The experience of state planners over the past three years will be discussed in greater detail throughout the balance of this report. To aid in the quest for information, a questionnaire was sent last spring to some 90 people involved in one way or another in environmental education planning. The replies received were used to prepare the agenda for a National Conference on State Planning, co-sponsored by USOE and CRE, held in Estes Park, Colorado, in May 1973.

(The questionnaire and a summary of the replies are included in Appendix C, the conference agenda and roster of participants in Appendix D.)

Summary of State Planning

ALABAMA*

"Blueprint for Action" (1972)
"Environmental Education in Alabama -
A Comprehensive Approach" (1973)

Received planning grant in 1972. Indicate planning completed with implementation going on.

ALASKA*

"Alaska State Plan for Environmental Education"
(First draft, December 1971)

Indicate planning completed with implementation going on.

ARIZONA

Indicate they are well into planning.

CALIFORNIA*

"A Report to the California Board of Education by the Conservation Education Advisory Committee" (1969)
"California State Plan for Environmental Education" (1972)
"Program for Environmental Education in California Public Schools" (1973)

Indicate planning completed with implementation going on.

COLORADO*

"Interim Master Plan for Environmental Education" (April 1972)
"Master Plan for Environmental Education" (June 1973)

Received grants in 1971 and 1972. Indicate planning completed with some implementation going on.

CONNECTICUT*

"Coordinated Action Plan for Environmental Education" (March 1973)

Indicate planning completed with implementation going on.

DELAWARE*

"Environmental Education in Delaware" (1973)

Indicate planning completed with implementation going on.

DISTRICT OF COLUMBIA

Received grant in 1972. Indicate they are still in "the tentative stage."

FLORIDA*

"Florida Master Plan for Environmental Education" (December 1970)

Indicate planning completed with implementation going on.

HAWAII*

"Hawaii Is Unique" (February 1973)

Received grant in 1972. Indicate planning completed with implementation going on.

ILLINOIS

Indicate they are near the end of planning.

INDIANA

Indicate planning completed with little or no implementation going on. (No document.)

MARYLAND*

"Report of the Advisory Committee for Environmental Education to the Maryland State Superintendent of Schools" (July 1971)

MASSACHUSETTS*

"Environmental Education in Massachusetts" (March 1973)

Received grants in 1971 and 1972. Indicate planning completed.

MICHIGAN*

"Michigan's Environmental Future: A Master Plan for Environmental Education" (July 1973)

Received grant in 1972. Indicate planning completed with implementation going on.

MINNESOTA*

"Environmental Education in Minnesota - A State Plan for Environmental Education" (1972)

Received grants in 1971 and 1972. Indicate planning completed with implementation going on.

NEBRASKA

Indicate planning completed with little or no implementation going on. (No document.)

NEW HAMPSHIRE

Received grant in 1972. Indicate they are well into planning.

NEW JERSEY* "Master Plan for Environmental Education" (1970)

Indicate planning completed with implementation going on.

NEW YORK* "Temporary State Commission on Youth Education in Conservation, Third Report to the Governor and Legislature on Conservation Education" (April 1973)

Received grant in 1972. Indicate planning completed with little or no implementation going on.

NORTH CAROLINA* "Master Plan for Environmental Education" (Second draft August 1973)

Received grant in 1972. Indicate that planning is nearly completed.

OHIO* "Ohio Plan for Environmental Education" (Draft, April 1972)

OREGON* "A Proposed Plan for Environmental Education for the State of Oregon" (November 1970)

Indicated planning completed with implementation going on.

PENNSYLVANIA

Indicate planning just started.

RHODE ISLAND

Indicate they are in the formulation stage for a state plan endeavor.

TENNESSEE*

"A Report on the State Conference on Environmental Education" (1972)
"Tennessee Master Plan for Environmental Education" (September 1973)

Indicate planning completed.

TENNESSEE VALLEY AUTHORITY

A "Proposal for an Environmental Education Program for the Tennessee Valley Authority" (August 1973) has been submitted to the General Manager of TVA.

TEXAS*

"A New Environmental Ethic, Texas State Plan for Environmental Education" (March 1973)

Received grants in 1971 and 1972. Indicate planning completed with implementation going on.

WASHINGTON*

"A State Plan for Environmental Education" (1970)

Indicate planning completed with little or no implementation going on.

WISCONSIN*

"Environmental Education: A Neglected Foundation for Environmental Quality" (Draft, March 1973)

Received grant in 1972. Indicate planning completed with implementation going on.

*State Plan documents received thus far.

NOTE: There are other states who are giving some preliminary consideration to the preparation of a state plan. To our knowledge, these include Arkansas, Georgia, Idaho, Iowa, Kentucky, Louisiana, Maine, Mississippi, Nevada, South Carolina, South Dakota, Utah and Wyoming. But we have no knowledge of their progress.

CHAPTER 2.

DEFINITIONS AND MEANING BASED ON ASSUMPTIONS OR PHILOSOPHY

Before launching into a description of master planning for environmental education, it might be wise to discuss briefly the meaning of some of the terms we will use.

There are real problems both in defining and in failing to define words or terms. One can get hung up and create even more uncertainty by attempting to define words. On the other hand, definitions are expected and many times required when we want others to join with us in our efforts. Many words and terms we use are only implied, but they dictate how we behave because they form the basis of our assumptions and philosophies. For example, we may never use the word "democratic," but assume we behave in a democratic manner or that we operate under a democratic philosophy.

Let us take a moment then, to expose some of the jargon to be used here, providing some explanation of what we (the authors) mean when we use certain words or terms, and at the same time to surface some of the assumptions and philosophies which underlie much of the work done in statewide master planning for environmental education.

The term environmental education may be the most difficult of all. A recent definition by the U. S. Office of Education appeared in their 1973-74 guidelines,[1] and was quoted in an article by Walter Bogan, director of USOE's Office of Environmental Education.[2]

WORKING DEFINITION 1 (emphasizing process and theory)

> Environmental education is the process that fosters greater understanding of society's environmental problems and also the processes of environmental problem-solving and decision-making. This is accomplished by teaching the ecological relationships and principles that underlie these problems and showing the nature of the possible alternative approaches and solutions.

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[1] Department of Health, Education and Welfare, Office of Education, Environmental Education Handbook (PL 91-516), 1973.

[2] Walter J. Bogan, Jr., "Environmental Education Redefined," The Journal of Environmental Education, Summer 1973.

> That is, the process of environmental education helps the learner perceive and understand environmental principles and problems, and enables him to identify and evaluate the possible alternative solutions to these problems and assess their benefits and risks. It involves the development of skills and insights needed to understand the structure, requirements, and impact of interactions within and among various environmental entities, subsystems, and systems.

WORKING DEFINITION 2 (emphasizing content and purposes)

> The term environmental education means the education process dealing with man's relationship with his natural and man-made surroundings, and includes the relation of population, pollution, resource allocation and depletion, conservation, transportation, technology, and urban and rural planning to the total human environment (from the Environmental Education Act of 1970).
>
> That is, environmental education is the process of inquiry into both the specific and general environmental implications of human activities viewed from the perspective of social needs and values as they relate to general public policy.

An earlier but still very useful definition is the one prepared by Dr. William B. Stapp, environmental educator from the University of Michigan:

> Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution.

There are a wide variety of others, any of which might be helpful. (See Appendix E for an additional, but in no way comprehensive, list of definitions.)

Most definitions, however, fall short of explaining environmental education as it must be used as a part of planning, i.e., with an orientation toward the future. In that light we would like to add the following statements. Given a balanced set of judgments and projections about environmental conditions, the learner must:

- Make value judgments and select the future environmental conditions suited for him.
- Seek or develop alternative solutions which are most likely to result in the desired future environmental conditions.
- Use his knowledge and understanding of ecological concepts and principles in making decisions about desirable future environmental conditions and in developing or selecting alternative strategies for achieving these conditions.

- Take action (alone or with others) to implement a selected solution or set of solutions to environmental problems.

In defining master planning, probably the place to start is with the word planning. Let's see how it is used among those in education.

"Planning is a process of determining 'where to go' and identifying the requirements for getting there in the most effective and efficient manner possible."[3] A very practical and to the point definition: "A plan is a predetermined course of action."[4] A systems designer describes it as follows:

> A goal is set, a group of alternatives is created, each alternative is scanned as to whether it will or will not lead to the goal, one of the alternatives is selected, the plan is implemented, and the decision maker checks to see how well the plan worked. The last piece of information is used to control the operation of the plan as well as to plan better in the future.[5]

It is this systematic approach that we will use to describe the planning process. Master planning implies an effort which may encompass or be an umbrella for a number of subsidiary plans having a more specific but interrelated focus -- on particular groups of people, geographic regions, content areas, or whatever.

The meaning of statewide seems fairly clear, but as an assumption it presents certain problems. Many planning groups have attempted to do statewide planning but have in fact been limited to a much narrower focus. For example, in terms of geography it was extremely difficult to do real statewide planning in Colorado because of the overwhelming pressure to center our attention on the Denver metropolitan area. Nor were we able to plan effectively for or with the ethnic minorities or members of the labor movement. Similar restrictions on what "statewide" means are encountered in other states.

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[3] Roger A. Kaufman, Educational System Planning, Prentice-Hall, Inc., Englewood Cliffs, N. J., 1972, p. 6.

[4] Preston P. Le Breton and Dale A. Henning, Planning Theory, Prentice-Hall, Inc., Englewood Cliffs, N. J., 1961, p. 7.

[5] C. West Churchman, The Systems Approach, Dell Publishing Co., New York, 1968, p. 147.

The terms process and content should be considered together because they are better described by comparing them. The term "process" should be viewed as the methods, procedures and means used to accomplish the planning task -- the how. "Content," on the other hand, is made up of the data, information and results of the task -- the what. These two words take on additional meaning, however, as assumptions or philosophy. Look again at the two USOE working definitions of environmental education; one has a process focus, the other a content focus. People pick one or the other because of their assumptions about what environmental education is or because of their philosophy regarding process or content. It is a matter of emphasis.

It is clear that during the conference in Estes Park more time was spent on issues reflecting the process than on content per se. This document is primarily about process. The issue that most planners raise, once their plans are completed, is how can any of what was planned get implemented -- clearly a bias toward process.

One explanation for the apparent bias toward process, especially during the past few years, is that content has not been clear; and in many cases when it was clear, it was threatening. It has been popular to propose changes in the process of education; John Dewey did it as early as the 1930's and it has been a major focus of educational attention ever since. However, we have not focused the same amount of attention on the kinds of changes in content that are now being proposed by environmental education. To continue to propose that we change the process of education, and at the same time to propose these kinds of changes in the content or substance of education, is at least difficult to accept and may be threatening as well. Compare the definitions and explanations of environmental education with the traditional notions about education. The following description of "school," taken from a major education psychology textbook, points out the dilemma.

> The school is the institution in our society organized and supported to promote efficient learning -- to assist learners in acquiring and improving the many cognitive and psychomotor abilities which previous generations required thousands of years to generate.[6] (The underlining is ours.)

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[6] Herbert J. Klausmeier, "Learning and Human Abilities," Educational Psychology, Harper and Row, New York City, 1961, p. 3.

Most of the history of educational thought in this country has been based on the premise that the major purpose of education was to pass on to the present generation the knowledge and skills of the past. Very little attention was paid to attitudes and values or the need for a different future. Environmental education places a great deal of its focus on both these areas and is, therefore, contrary to much of what people believe to be education.

We use the terms formal and non-formal education to differentiate between education that occurs in the academic institutions and that which occurs outside formal "schooling," through newspapers and television for instance.

Coming out of the discussion of process and content are the terms participative and grass roots. Both terms are popular today and both were used by planners in answering the questionnaire and at the Estes Park Conference to describe and explain the nature of their process. In Colorado we called it "broad-based citizen representation." The term statewide implies participation; the emphasis given to the "needs of the people" also implies a philosophical bias toward the participative approach and getting grass roots support. This contrasts with the elite approach where a few so-called experts prescribe what the "public" should know and do.

PART II

PRE-PLANNING

The purpose of this section is to direct the planner's attention to some issues that should be considered prior to any attempt to launch a planning effort in environmental education.

CHAPTER 3.

CONTROVERSIAL ISSUES RE ENVIRONMENTAL EDUCATION PLANNING

There are a variety of very important, even critical, issues -- controversial assumptions, if you will -- that should be raised and discussed prior to any attempt to launch a planning effort in environmental education and to predict its chances of success. Inasmuch as some or all of these issues will certainly crop up, especially if the planning is to involve citizen participation, it is wise to face them squarely in the beginning. Even though the decision to undertake a comprehensive planning effort may already have been made, the planner should examine the task in light of the assumptions on which he will be operating.

It is hoped, therefore, that before embarking on a major planning program, or going further with an effort under way, the planner will look at the issues presented in the following questions, read the discussion for any insights it may provide, and attempt to answer them in local, specific terms. (Hopefully, these will raise other issues and questions relevant to the success or failure of his own effort -- to be resolved or at least examined.)

There are no right or wrong answers -- there may not even be an answer. It is possible that some questions may not be appropriate in a given situation. And be aware that we have deliberately brought into focus areas which for educators and planners may be sensitive. These questions and discussions do not necessarily represent our particular point of view. However, they were raised at one time or another during our statewide planning efforts in Colorado. Our answers at that time now seem to have been shallow; certainly they were biased in favor of what we were doing. Pondering these issues seriously in the beginning may not have changed our direction, but may have helped significantly in the carrying out of our task and the way we explained it to those whose involvement we were seeking.

1. Can we predict that, as a result of environmental education master planning, there will be any observable change in the environmental conditions or any observable solutions to environmental problems?

There is considerable debate over this question. The statements of the planning goals and the purposes of the master plan document presented in this report may seem to provide ample justification. But the planner should examine carefully the conditions within his state to determine if and to what extent such an endeavor is relevant and appropriate.

Most rationales given for providing environmental education seem to say, in one way or another, that the world's environmental problems and undesirable conditions exist because people do not have the right attitudes, values and beliefs required for maintaining a quality environment -- or that it is people's behaviors which either cause or prevent our solving environmental problems. An assumption many times made is that the answer is to be found in environmental education. However, much of the data collected on environmental problems, conditions and concerns has been filtered through the prism of education, and the true colors may be faded or distorted. In some cases the data indicates that environmental education may very well not be, as they say in medicine, "the drug of choice" in attempting a cure.

Perhaps environmental problems and their solutions are just too complex for education alone. A more realistic view of education's role might be to consider it as only one element in a complex set of social, technological, economic, legal and other approaches available for solving these problems. Our failure to examine all of the forces which contribute to solutions to environmental problems may be a real weakness in what we are all doing.

Agreement about what we actually want to do about some of the conditions of the environmental and ecological balance has not yet been reached. Not being able to agree on the problems or their causes pretty much makes it impossible to agree on the solutions. What we may be doing is taking the easy way out by advocating the applications of education. But, given the realities of the people's concerns, education as a solution may fall way down on the list of things to do, or at least it may have its focus narrowed considerably.

In coming to grips with clearly defining and describing the environmental conditions, one may find that the problem is one of culture, requiring massive efforts to change; or it may be one of inertia, run-away technology which may or may not be reversed or slowed by education. The so-called problems with individual behavior may be simply the result of a people's efforts to adapt to their environment, which may in turn cause still other environmental problems. The puzzle of which comes first, the chicken or the egg, raises serious questions about the ability of education to make a difference.

This is not to say there is no need for or value in planning. But as educators and planners perhaps we should practice what we preach and apply a multi-disciplinary approach to our selection of alternative solutions. In any case, the initial task of a planning effort is to resolve the dilemma of priorities. It should determine the extent to which environmental education is a part of an overall program of environmental management and what role it plays in the overall scheme.

2. Is PLANNING as good or better than the other uses to which our education time, money and resources can be applied?

Within the circle of people who contributed to this report, there is the belief that planning is as good or better than other educational alternatives, based on evidence we believe valid -- that is probably why many of us engage in it. But there are other alternatives to be examined, described and compared with planning.

Even given agreement as to the nature and magnitude of the problems, conditions and concerns, there remains a controversy as to what the needs are and whether planning has a high enough priority as compared to other means of attacking the problems. For many, it is an issue of planning versus doing, i.e., a fundamental conflict between the short-range tangible and obvious results versus the long-range and less obvious results. For example, since teacher training and curriculum development seem to be obvious needs, why not just get on with the job? There are those who believe that by accepting education as a solution, we are accepting a generally long-range view, and that if we choose education planning, we risk postponing tangible and visible results even more.

3. Is there any set of conditions or circumstances which in some way determine the proper time to start a master planning effort?

Many believe that premature or improperly considered starts to master planning efforts may end in failure. Some have indicated that if adequate start-up requirements are not present, or are not likely to occur within a reasonable time, it is probably not realistic to expect anything approaching the outcomes described in this book. Others, however, point out that because master planning takes such a variety of forms some initial but important steps may lead to acceptance for the whole idea.

Several of those who expressed their concern in this area made an initial attempt, by looking back on their own experience, to prepare a set of general guidelines for determining state readiness. (The discussion on planning climate on Page 65 is based on the their work.)

4. Is it always wise to attempt to prepare a STATEWIDE master plan?

There are those who have expressed the view that incorrect location or improper geographic focus can seriously hinder or even destroy attempts to do effective planning. It seems perfectly clear that in Colorado the preeminence of Metropolitan Denver, an area with some 70% of the state's population, acted as a magnet to the planners' efforts drawing them away from their best laid plans to adequately deal with the remaining 97% of the state's geographic area.

By the same token, is a statewide plan in New York really possible given the nature of the demographic, political and economic separation that exists between New York City and the remainder of the state? In Illinois, with Chicago? In California, between north and south? Similar circumstances exist in the majority of states. Given the limited amount of time, money, equipment and other resources, one must make sure to add the geographic-based demographic, social, political and economic conditions to the set of uncontrollable factors to be taken into consideration.

5. Are we as educators willing to take a stand and begin describing, in specific terms, the environmental problems and conditions?

Many people concerned about solving environmental problems and changing environmental conditions are exasperated with the educator's unwillingness to forthrightly answer the above question. Some express the view that the answer is probably "no" and insist that education about the environment must strive to utilize a balanced approach, presenting both sides to all issues.

Looking at it another way, everyone (with a few exceptions) seems to agree that there are environmental problems, but most are able to describe them only in global terms. One reason for this is lack of information; another reason is that it is safer that way. There seems always to be real disagreement about the nature or importance or causes of a problem whenever the description of the problem becomes specific. In an attempt to cope with this situation, problems and conditions are often described in such general terms that it is impossible for them to be controversial or for anyone to take action on them; to describe them in any other way is to set up threatening conflicts. There is little evidence that education is really ready, able, or willing to resolve such conflicts.

Educators can take a stand against a problem and for its solution, but should they advocate one solution over another? Perhaps their role should be to effectively present the alternatives and facilitate examination of relative merits. In the case of value conflicts, should educators advocate certain values, present the range of known values, or help people find and clarify their own values? No one seems clear about which of these, if any, is appropriate for the educator.

No matter what the outcome, however, educators must begin to find ways to come to grips with conflict and problem specificity or they will have to make some alterations in their definitions and descriptions of environmental education.

6. Is education the salvation or the cause of the fix we and our environment are in?

Here the assumption is that education does play an important role in addressing environmental problems and conditions, arguments for other solutions to the contrary. The issue is the nature of education and its role as either cause of or solution to these problems.

To many environmentalists, formal education is the cause of the problem because it has succeeded in passing along from one generation to the next a complete set of ecologically unsound cultural values and social behaviors. Among these are the capitalistic economic system which places profit above all other concerns, the attitude that nature is to be exploited and that growth is to be valued over conservation, and the idea that bigger is better. On the other hand, many businessmen and others criticize the education system for failing to pass along to the present generation the cultural values of a capitalistic economic system, which they say is the undoing of our "way of life."

Therefore, when one talks about the purpose and role of environmental education, one is compounding an already difficult situation. Finding a way to deal with this issue is central to the success or failure of an environmental education effort.

7. Is environmental education ahead of its time?

There is a real possibility that environmental education, and thus planning and support for planning, is ahead of its time. Maybe the problems that people see in the environment are too immediate for the long-range approach to solutions offered by education. Even the argument that education is needed if people are to support the required social and political management actions (laws, policies, technology) is open to question and debate.

8. Can support for environmental education be a cop-out on efforts in other areas of environmental problem solving?

Perhaps the best way to present this issue is in terms of how it is most often raised, legislation and money. An often-asked question is "Why doesn't the legislator do more about environmental education?" Even assuming the legislator understands what the potential long-range effect of environmental education could be in terms of change, one can make an excellent argument that given the system of education delivery (schools and media) legislative support for environmental education probably will not result in any change. Legislation for environmental education, then, which would be seen by most people as a giant boost for the cause, could be the best "out" for the legislator who doesn't want to bite the bullet on tough environmental issues like land-use planning, the management of energy, water, transportation, etc.

Education can be an important complementary element in the area of environmental management. However, the point of this issue is that adequate attention must be given to all facets of environmental management, rather than allowing education to be the only approach used.

9. Are the benefits of master planning, both in terms of the document produced and the process of developing it, worth the commitment of time, money, and human resources that are required to do an adequate job?

This issue is fundamental. An important consideration in this regard is the hazard of over-planning, taking too much time and using too many resources to refine the plan and too little time and too few resources in implementing its recommendations. This hazard is implicit in any approach attempting to separate planning from implementation. Too many comprehensive planning projects have been simply ground exercises, self-satisfying to the planners. The plan was the end in itself.

The time, money, and human resources to do an adequate job must lead to a plan that can be judged by a variety of criteria to have succeeded. This may take a few years to realistically determine, although some say that we may never assess the direct benefits of the present master planning efforts. In any case, for most planners, the worth of the master plan effort lies in the extent to which it meets its own goals and objectives.

These questions are open-ended. The discussion is not meant to provide answers; each case is presented only as food for thought. It is important to its success that the planner feel confident that his answers to the questions are such that it is clearly worthwhile to launch a planning effort. Admittedly, this will require some "hip shooting" and some educated guesses initially; but if one can begin early to involve key, knowledgeable people, the beginnings of the answers can be determined.

PART III

THE PLANNING PROCESS

We have chosen to use the planning process as the vehicle to present this discussion of environmental education planning. It is clear that most of those engaged in master planning for environmental education employed some form of goal-referenced system with which to carry out their task. The system we are using here is based on a model developed by the Center for Research and Education.

The next several chapters will attempt to explain the what and why of such a system. PART IV will cover the how.

CHAPTER 4.

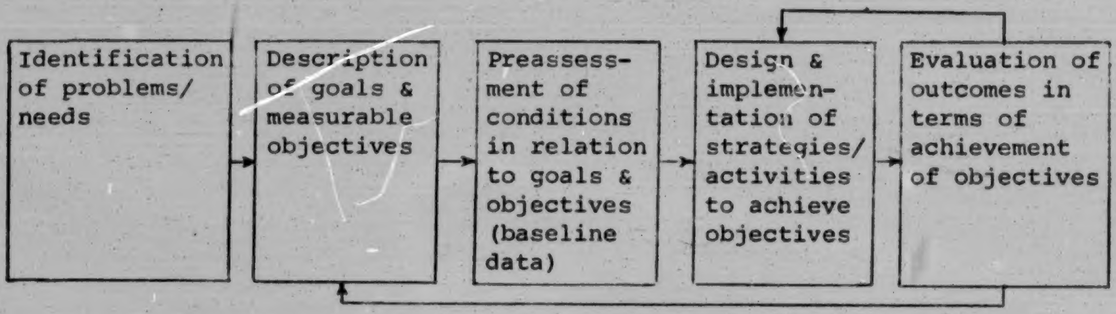
A GOAL-REFERENCED MODEL

This chapter will provide an overview of the goal-referenced planning process; a more detailed explanation of each element will follow in subsequent chapters.

The system begins with the collection and study of data concerning the problems and needs. This information is translated into general goals, which are then spelled out in terms of measurable objectives or outcomes expected to be attained. Strategies are developed to achieve these objectives. Built-in, program-specific evaluation instruments and measurement techniques are employed to provide (1) continuous assessment of progress, (2) a feedback mechanism for self-correcting improvement, and (3) comparison of objectives achievement with the baseline data.

This systematic process insures that the functions of planning, implementation, and evaluation become an integrated operating structure leading to successful achievement of program goals. A simple schematic representation appears in the following figure:

If objectives are not achieved, revise strategies.


Identification of problems/ needs
Description of goals & measurable objectives
Preassessment of conditions in relation to goals & objectives (baseline data)
Design & implementation of strategies/ activities to achieve objectives
Evaluation of outcomes in terms of achievement of objectives

As objectives are achieved, augment them or conclude the program.

Figure 1.

Goal-Referenced Planning/Implementation/Evaluation Model

A competent needs assessment, or identification of the specific problems, conditions and needs, through the collection and analysis of field data will determine to a large degree the relevancy and impact of the program activities. With this approach, a specific activity is geared to achieve a given objective based on proven need, not simply because the activity "looks good." This sounds elementary, but it is surprising how many projects are undertaken without a sound analysis of this kind, especially in terms of the interests and concerns of the people to be affected by the program.

This data is translated into general goals, which give direction to the program and establish achievement parameters. The objectives, or performance indicators, are the visible or directly assessable conditions we are willing to accept as evidence that our goal is being met. This step includes the development of specific measurement instruments and techniques, data collection procedures, and methods for data analysis and interpretation.

These instruments and techniques are first employed in pre-program assessment activities in order to establish baseline for the level of attainment of the objectives, and are subsequently used in post-program assessment to establish the extent of change which occurred as a result of the activity.

Alternative strategies for achieving the objectives are developed and implemented according to a systematic sequencing procedure. Evaluation of the effectiveness of the program activities is then quite straight-forward. Accountability is built into the system in terms of measurement of achievement against specified objectives.

For planning efforts which conclude with the written "Plan," the systematic process described can be applied effectively to the carrying out of the planning task itself. However, for purposes of this book, we are including the implementation of the programs and activities recommended in the Plan. An outline of how this method could operate in the planning, implementation and evaluation of a comprehensive state planning effort for environmental education is shown in the diagram in Figure 2.

A more detailed discussion of assessment, goals and objectives, strategies to achieve the objectives, and evaluation are presented in the following chapters. How to put it all together is covered in PART IV.

I. PRELIMINARY WORK

- Resolve issues and determine operational procedures
- Determine planning climate
- Establish goals of planning process
- Select planning participants
- Secure funding & other planning resources

II. SITUATION ASSESSMENT

- Determine environmental problems, conditions & concerns
- Determine educational problems, conditions (existing efforts) & needs
- Ascertain environmental education resources -- present & future

III. BUILDING OF PLAN

- Establish goals & objectives and program recommendations for environmental education plan
- Conduct pre-assessment; determine constraints
- Develop strategies & activities (with budgets) for implementing program recommendations
- Determine resource needs and secure resource commitments
- Public review as appropriate

IV. IMPLEMENTATION OF PLAN

- Secure implementation commitments
- Publish plan documents
- Public involvement & review as appropriate
- Carry out recommended programs & strategies

V. EVALUATION & FEEDBACK

- Apply tests & measurements to learners
- Evaluate operation of the programs
- Prepare and deliver feedback reports

VI. CONTINUATION, MODIFICATION OR CANCELLATION

- Program strategies
- Goals & objectives

Figure 2.

Outline for Planning/Implementation/Evaluation of an Environmental Education Plan

The following is another example of a process for writing a state environmental education plan, taken from a paper presented at the Estes Park Conference.*

A Process for Writing a State Environmental Education Plan

1. Governor should appoint a broad-based task force to write a comprehensive and long-range plan.
2. The task force should make an assessment regarding Environmental Education resources (human, programs, facilities, funds, etc.) in the state.
3. The task force should make an assessment of current Environmental Education needs in the state.
4. The task force should formulate state Environmental Education goals and objectives designed to meet current Environmental Education needs in the state.
5. The task force should provide for a public review process of the state Environmental Education goals and objectives.
6. The task force should rewrite state Environmental Education goals and objectives based upon public review.
7. The task force should hold regional meetings in different sectors of the state to provide each component group (business, youth organizations, higher education, etc.) the opportunity to identify constraints, and to make recommendations and suggest strategies regarding ways to achieve stated goals and objectives.
8. The task force should write a preliminary draft of the State Environmental Education plan based upon their discussions and input from the regional meetings.
9. The task force should hold a State Environmental Education Conference to react to the stated Environmental Education goals, objectives, recommendations, constraints, strategies and priorities.
10. The task force should rewrite the State Environmental Education Plan based upon their discussions and input from the State Environmental Education Conference.
11. The task force should provide the opportunity for the State Environmental Education Plan to be reviewed by citizens, groups, and organizations from throughout the state.
12. The task force should rewrite the State Environmental Education Plan.

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*William B. Stapp, University of Michigan, "State Environmental Education Master Planning" (paper presented at the National Conference on State Planning, Estes Park, Colorado, May 16-18, 1973).

13. The task force should submit the State Environmental Education Plan to the governor.

14. The task force should distribute the State Environmental Education Plan to citizens, groups and organizations throughout the state.

15. The task force should have the State Environmental Education Plan evaluated by an independent evaluation team to determine the extent to which the stated objectives in the plan are achieved.

16. The task force should provide the mechanisms to implement the recommendations outlined in the State Environmental Education Plan.

17. The task force should make certain that the State Environmental Education Plan is revised and rewritten, if necessary, to accomodate changing needs and new information.

CHAPTER 5.

ASSESSMENT -- Where are we now?

Assessment of the situation in a particular state or region is a first step in the systematic process we are using to discuss the implications of environmental education planning. It answers the first of four questions planners ask:

1. Where are we now?
2. Where do we want to be?
3. How do we get there?
4. How do we know when we have arrived?

Identification of Problems, Needs, and Resources

Situation assessment revolves around the collection of information about environmental and human problems and needs and the resources presently available, and predicted to be available in the future, with which to address these problems and needs, especially in the area of education.

It is important that such data be collected because we must re-examine, in the light of these findings, the decision to move ahead with environmental education planning. We must ask the question, "Given the problems, conditions and concerns, and with all else taken into consideration, is environmental education and environmental education planning the best thing we could be doing now -- and why?"

Another reason assessment is important in the beginning of the process is that we want to know what is motivating people, who is concerned about what, and to what extent. When we can determine the areas or problems with which people are highly concerned, it should increase our chances for success by directing our efforts at these areas. The converse is true in areas where there is a low concern. By knowing who, what and to what extent, we can capitalize on areas of high opportunity with the appropriate people and work to build concern for issues where this is seen as important.

Through this data collection process, the planner also develops baseline information regarding the situation in education and the environment.

For the purpose of this book we will focus on problem identification, which is seen as being somewhere between a statement of environmental conditions and an expression of people's concerns. By focusing our attention on the gathering of information about problems, we can work backwards into a description of the conditions or forward into determination of concerns.

One can contrast conditions and problems largely on the basis of the difference in objectivity. One can contrast problems and concerns on the basis of the degree to which people are willing to either rank-order or to indicate on a scale the extent to which they see the necessity for attacking or solving a given problem. Conditions are based on facts; concerns are expressions of the conditions that people know and care about -- conditions people wish to maintain because they are good or beneficial to them or conditions people wish to remove or escape from because they are bad or damaging to them. Concerns, like problems, are very value-loaded and depend heavily upon the attitudes and beliefs of the people examining them.

The area of problems, conditions and concerns is a complex one. To illustrate, let's look at three statements made in the Environmental Education Act.

First is an expression of the basic problem:

> The deterioration of the quality of the Nation's environment and of its ecological balance threatens to pose serious problems with regard to the strength and vitality of the people of this nation.

Here is the second level, the knowledge and understanding of the people about the problem stated in the first level:

> In part, these problems are a result of poor understanding by the general citizenry of the nation's environment and of the need for its ecological balance.

Finally, there is a statement about still a third level, that of resources for attacking the second level problem:

> This is due in part because of a lack of resources for educating and informing the people of the nation in these particular areas.

For purposes of a master plan, it is important to gather information about the problems in each of these three levels.

It seems important, too, to give attention to both the present and potential problems, conditions and concerns. By examining both, one can better assess the likelihood that environmental education will contribute to the changes sought. One should crank into any analysis of this kind the technological, economic, social, legal and other alternative approaches, along with that of education, in determining the best use of time, money and other resources.

Because any statements describing problems and concerns are heavily value-loaded, there will be a variety of perceptions of the problems as well as varying levels of concern. There will even be a difference as to what constitutes a problem. There are differences as to the nature of problems even when there is agreement on the problems. There are differences in the intensity or magnitude perceived for any of the problems. There are differences about the comparative value or place in a rank-ordering that various problems should receive. In still another context, we find that there is a discrepancy in the way people perceive problems for today and what they see regarding the problems of the future. In part, this may be because people are not used to or skilled at making decisions of this kind, i.e., looking into the future and assessing the world as they would like to have it as compared to the way it is today.

Planning Climate

Another element in situation assessment has to do with the planning climate -- questions concerning the level and intensity of awareness, interest and commitment apparent in the state, the political and economic situation, the nature of the resources available, etc. This information is critical as it forms the framework within which the work must be accomplished. It is also useful in identifying the constraints on the planning effort.

A more detailed discussion of how to collect the information required about problems, needs, resources, and planning climate is included in PART IV - MAKING IT HAPPEN.

CHAPTER 6.

GOALS AND OBJECTIVES -- Where do we want to be?

Accurate identification and careful articulation of the specific environmental and educational problems, conditions, needs and resources through situation assessment will greatly influence the relevancy and impact of the program activities. The specification of goals and objectives, therefore, is the critical link between the information collected and the development of the strategies or program activities.

The goals give overall direction to the program; the objectives are stated in observable and measurable terms, including the conditions one is willing to accept as evidence that the goal is being met. Each intended outcome (objective) is written in such a way that it includes the following elements:

- The specific change that is expected to occur as a direct result of the activity.

  If this is in terms of an attitudinal change or something to be learned by a group of people, the specific behavioral change would be defined. If, on the other hand, the intended outcome is in terms of some physical or situational modification, the objective change in that situation would be described. The important element here is that these objectives are specified in terms of changes that are observable and measurable.

- The criterion or standard which the intended change is expected to achieve. This would be stated in terms of the number of people expected to change, the quality or extent of the expected physical change, etc.

There are two types of goals with which planners must deal. Perhaps the schematic representation in Figure 3 on the following page will serve to clarify how these two types of goals fit into the overall system.

- The goals and objectives for the planning process itself follow directly from the study of the issues discussed in Chapter 3 and the basic philosophy underlying the entire planning effort. For instance, the planner has a ready-made goal implicit in the decision to involve a broad cross section of the citizenry in the preparation of the state plan.

- The goals and objectives of the statewide environmental education program resulting from the planning effort are formulated directly from the data collected in the situation assessment phase described in the previous chapter.

A distinguishing feature of this goal structure is the three-level set of program goals and objectives. Inasmuch as we are concerned with a problem-centered planning process, we should write goals for all three levels of the problem raised in the Environmental Education Act: (1) the nation's environment, (2) people's knowledge and behavior, and (3) the resources for educating the citizenry.

Another distinguishing feature is the use of program area recommendations as a link between goals that are general and objectives that are expressed in terms that are measurable. Our experience with the participative planning process provided evidence that it is easier for the participants, many of whom are novices in the realm of environmental education and planning, to recognize and understand a program statement than it is to recognize or comprehend a set of definitive objectives. Obvious examples of program area recommendations are:

- An environmental education resource clearinghouse
- Teacher training
- Involvement of media

It is also easier to explain objectives and criteria for indicators of success in terms of specific program descriptions than in terms of general goals. Thus, the ability of those involved in planning who are not educators to participate fully in the review process is enhanced.

It is extremely important that the planner establish a good set of goals and objectives (and related strategies) for the planning effort as well as for each of the recommended program areas. Without well thought-out and well articulated goals, there will be much activity but in no particular direction. If the planner and those with whom he works are to stay on course, he must articulate clearly where he wants to be when the effort is concluded.

More specific information regarding goals and objectives for a state planning effort in environmental education will be found in PART IV.

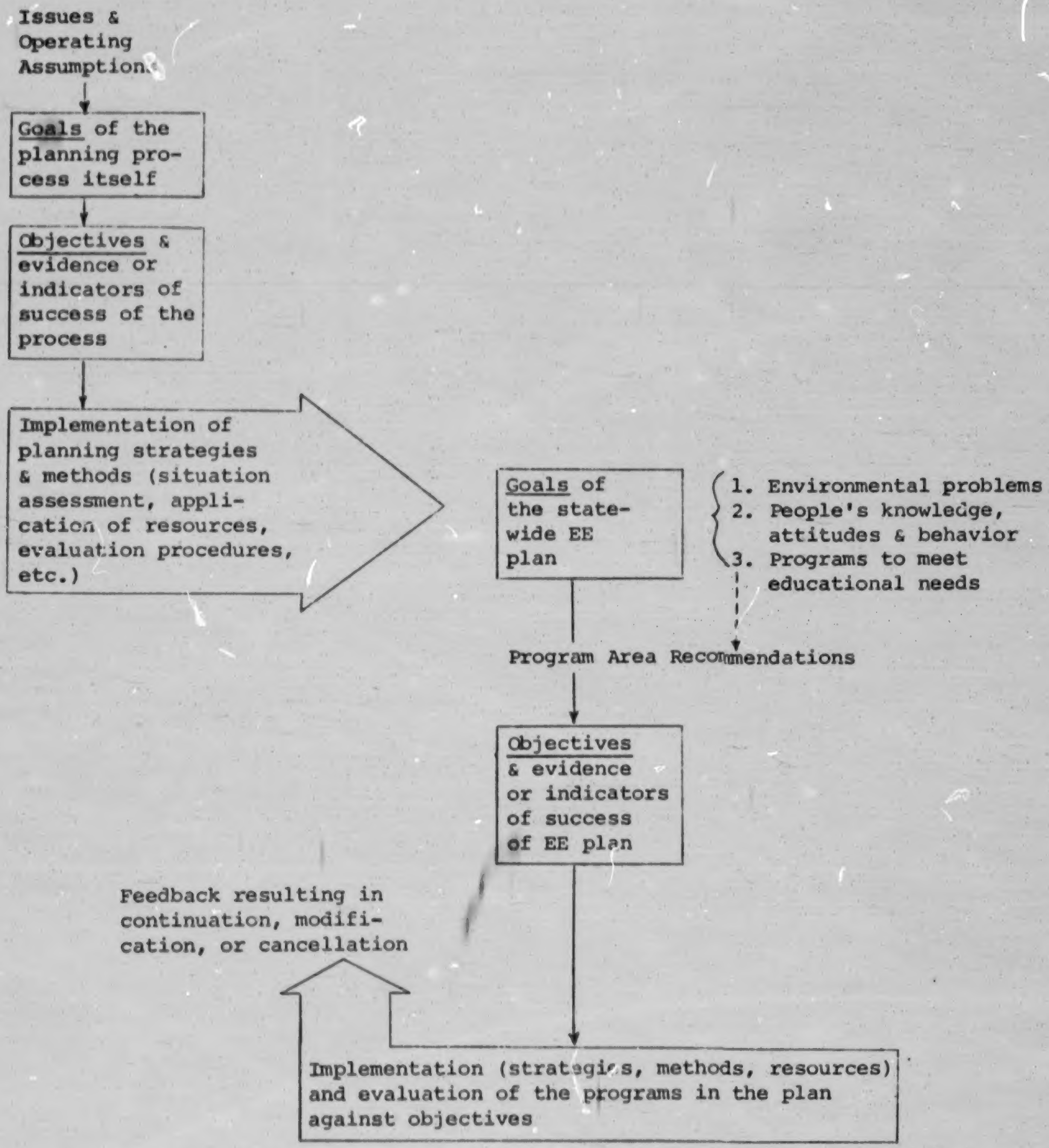
Issues & Operating Assumptions
Goals of the planning process itself
Objectives & evidence or indicators of success of the process
Implementation of planning strategies & methods (situation assessment, application of resources, evaluation procedures, etc.)
Goals of the statewide EE plan
1. Environmental problems
2. People's knowledge, attitudes & behavior
3. Programs to meet educational needs
Program Area Recommendations
Objectives & evidence or indicators of success of EE plan
Feedback resulting in continuation, modification, or cancellation
Implementation (strategies, methods, resources) and evaluation of the programs in the plan against objectives

Figure 3.

Goal Structure

CHAPTER 7.

STRATEGIES - How do we get there?

Strategy implies conscious, calculated planning. Webster defines it as "the art of devising or employing plans or stratagems toward a goal." A number of things should be taken into consideration, then, in the development of strategies to achieve our goals and objectives.

General Approaches

Basic operating decisions, such as who will have the responsibility for the planning effort and whether or not there will be an overlap of planning and implementation, are treated in our "how to" section in PART IV as preliminary to the four elements of the planning process (assessment, goals, strategies, evaluation). However, as these decisions have a great deal to do with the kinds of strategies required for achieving the goals, we have chosen to discuss them briefly in this chapter.

Two general concepts concerning operational responsibility have been employed in environmental education planning, each with variations and each being valid in a given setting.

On the one hand is the elite approach, where a small group of people made all of the basic decisions about goals and objectives, formulated the plan, and produced the planning document and any other results. In these cases, the planners were usually experienced in the field of education and included some who had ecology or conservation backgrounds. This approach might be chosen when the time restriction imposed simply does not permit the more tedious process of involving a large number of people. And in cases where there already exists a solid political and/or economic foundation for the effort, the need for wide-ranging participation may be diminished.

At the other extreme is a fully participative approach, where the planners began by presenting a tentative set of planning process goals to representatives of the citizenry. After arriving at agreement on these, they utilized citizen participation to collect information on problems, needs, and concerns; then sought concurrence from citizens for fundamental decisions regarding goals and objectives, the nature of the plan, the content of the document, and other outcomes. In a state like Colorado, where there is a tradition of decentralized implementation of nearly everything, but particularly education, the implementation of any environmental education program on a statewide basis depends on the interest and commitment and application of local resources.

Most planning is probably done by adopting an approach somewhere in between these two. There doesn't seem to be any right or wrong way, except in relation to the specific circumstances surrounding any given situation, but the responses to the questionnaire and the work of those at the Estes Park Conference clearly point toward the more participative model.

The Master Planning coin has two sides -- planning and implementation. Planning is the process of putting together the content (the needs and recommendations for meeting the needs) and of presenting and disseminating this information. Implementation is the carrying out of the recommendations, the following of the blueprint, the taking of the actions that lead to the achievement of the goals generated as a result of the planning process.

A second consideration regarding basic strategies, then, is whether the planning process will be the only purpose of the effort or whether implementation of the plan will also be considered part of the responsibility of those doing the planning.

The most typical and easily understood procedure is for the implementation of the plan to follow, as a distinctly separate step, the completion of the planning process and the publication of a document. (Often the agency or organization responsible for formulating the plan must turn over all, or most, of the responsibility for implementation to another agency or organization.) An alternative is to begin implementation prior to the completion of the planning process, as a parallel activity. (In that case, very often one agency or organization takes primary responsibility for at least providing the leadership to both planning and implementation.)

As the two sides of a coin are inseparable, many believe that to be effective planning and implementation should not be treated as sequential and discrete tasks. For efforts such as statewide environmental education planning to truly succeed, they probably have to go through something like four major phases -- in a continuous flow with the phases overlapping:

1. Planning -- which is objective in terms of preparing an intelligent and pragmatic approach to the situation, and yet subjective in terms of recognizing that we're dealing with people, not designing machinery.
2. Creating a momentum and commitment toward implementation -- the community development mode (a political process).
3. Implementation -- the use of the structures, projects and networks of harnessed effort that will achieve the goals of the plan.
4. Refinement -- improvement through continuous evaluation plus the watchdog function of seeing to it that what has been built doesn't collapse but continues in an ever-widening spiral.

The kinds of skills needed for successful planning are often different from those needed to successfully implement the plan. This seems especially true in programs whose purposes and goals are largely subjective and people-focused. Too many grass roots-oriented planners find it difficult to move ahead until there is a consensus, and are often so enamored of the democratic process that they fail to exercise firm leadership. To them, taking leadership means being dictatorial, and therefore objectionable. Further, many such planners are often excited and satisfied by the "electricity" or the "vibrations" generated when well-meaning people come together; they fail to see the need to create the dynamic necessary to move the action forward and to do the tough, uninspiring follow-up.

Just as the Plan should furnish the base for the dynamic or momentum, the dynamic should provide the foundation and many of the answers for implementation. To do this and do it well requires a repertoire of skills ranging from concern and insight for the human and social condition, to sometimes making the harsh choices between alternatives, to occasional deliberate insensitivity in order to get the imperative things done.

To pull off all four phases successfully, then, means either that each phase should be conducted by four successive groups, each carefully selected to have in abundance those skills required by that particular phase, or that a single group be capable of accepting the challenge of continually developing new internal skills to meet the problems engendered by the very success they sought.

An important challenge for state planners, therefore, is to thoroughly internalize the relationship between initiative, authority, and responsibility. "Initiative" must be jealously retained and aggressively used as the lubricant between the key elements of a developmental effort. "Authority" is the right by which one does whatever he does, often deliberately ignored or confused by those professing humility. "Responsibility" is the obligation to perform and be accountable to those who granted (willingly or not) the authority to perform. The interplay between these concepts is intellectually simple, but difficult to carry out. The easiest analysis is:

- Planners must never lose the initiative on any dimension of environmental education in the state.
- They must clearly detail and firmly fix with someone responsibility for every aspect of environmental education and its development, or accept the consequences of being held responsible themselves.
- They must accept authority for doing whatever is needed to accomplish the particular task at hand. (Authority is usually not clearly granted but must be seized by those having the correlative responsibility.)
- They must carefully pick and choose among the many things that could and should be done to find those that best advance the total effort -- and insure that they are done, at an reasonable cost.

Regardless of the approach used, however, or the skills of those involved, the goal-referenced model discussed on Page 33 calls for the selection of methods and strategies that offer the best chance of achieving the goals. By carefully linking the strategies and methods to the goals, and being careful to write objectives which offer measurement criteria or indicators of performance that will provide evaluative information along the way, the entire process will be strengthened.

Constraints

An element often overlooked in planning and/or implementing the plans are the constraints upon the effort. These should be taken into account from the outset, and strategies chosen to overcome them. For purposes of this report, constraints will be viewed in two ways.

The first involves those elements or factors which lie outside the control of the planner, circumstances and/or people that are givens -- state laws or agency policies which prevent certain key actions, for instance. These are things about which the planner can do very little but because they are a part of his "environment" he must be aware of. In fact, this particular set of "environmental" constraints is something that determines in part how well the planning or implementation will go.

The second set of constraints are those over which the planner does have some control; he can at least manipulate them to his advantage. These are the elements "inside" the effort, such as resources typically expressed in terms of money, man-hours and equipment. There are other internal constraints, of course, which are more difficult to manipulate because they usually involve the knowledge, skills and abilities, attitudes, values and beliefs of the planners or the structure and organization of the planning effort.

A more detailed account of how to identify constraints, determine ways to overcome them, and develop a systematic strategy with which to achieve the goals and objectives is presented in PART IV.

CHAPTER 8.

EVALUATION -- How do we know if we're achieving our goals?

Evaluation is generally conducted from one of two perspectives: assessment of the extent to which and manner in which intended program activities were actually carried out (a means-referenced base), or measurement of the effects of program activities on the target situation or population over the short and/or long term (a goal-referenced base). Of the two, evaluation referenced to the ultimate goals sought by the program is usually far more relevant to action-oriented projects. For purposes of illustration, the model discussed below is one used by the Center for Research and Education.

Regardless of the complexity or sophistication of a given program, most contain the same basic elements: a need, a goal, a means to achieve the goal, and a desire to compare results at the end of the program with conditions existing before the program began. Therefore, no matter what the specific purpose of the evaluation or the particular methodology used, we apply the various evaluation methods within a goal-referenced model. The procedure goeslike this:

1. Each goal is broken down into measurable objectives and each objective is stated as an hypothesis, including the quantifiable criteria necessary for evidence of successful achievement.
2. Measuring instruments are developed to assist in gathering evidence that accurately reflects the extent to which the objective has been achieved.
3. Statistical techniques are determined that are most appropriate for testing the hypotheses.
4. Data is collected and subjected to statistical analysis, and findings are consolidated.
5. Findings are compared to the criterion levels established for successful achievement of the objectives, judgments are made concerning the extent of successful achievement, and results are reported.

We believe evaluation for action projects must help strengthen the programming process -- not simply provide a report card. As a result, assessment and measurement of activities determine the extent of intended or expected achievement, and this data is systematically fed back to those responsible to provide guidance for decision making. Evaluation data can indicate precisely what happened in the process, where it happened, and why. Rather than post-project determination of what went wrong if something fails, or abandoning an entire activity for unclear reasons, a goal-referenced system with continuous feedback indicates which decisions were correct, which were not, and what must be done to achieve the desired outcomes. This type of evaluation contrasts sharply with approaches where the evaluative data arrives too late for use by those responsible for planning and/or implementing a program.

How to apply an evaluation system to the state planning effort is discussed in Part IV.

PART IV

MAKING IT HAPPEN

or

How to get the job done.

Whereas the emphasis in PART III was on theory and philosophy, and provided a general overview, the six chapters in this section are devoted to explaining, step by step, the procedure one might follow in undertaking an environmental education planning effort.

The content of this section is largely drawn from the replies to the questionnaire and the work done by the participants of the Estes Park Conference. Most of the specific examples included here and in the appendices are the result of their work.

CHAPTER 9.

OPERATING DECISIONS

In the opening chapter of PART III, the description of the planning process, we included an outline of the way the goal-referenced system might work in the development of a comprehensive environmental education planning effort (p. 35).

To recap the first phase, the Preliminary Work begins with the realization of the need to do something regarding environmental problems. Environmental education planning is one alternative solution. The issues surrounding the selection of this alternative must be resolved, out of which come the goals of the planning process. The planning group must then make decisions regarding who will do what, where, when, and how. These questions might include:

> Who will make and advise on policy? be the staff? support and supervise the work? pay the bills? provide information? review the work? be the audience?
>
> What are the goals and expected outcomes? strategies? indicators or evidence of success? organizational forms and structures?
>
> Where will the project draw its policy makers, advisors and staff? staff be housed? participants come from? audience be located? place its geographic emphasis? political emphasis?
>
> When will the project start? finish? arrive at major decision points or accomplish milestones?
>
> How will the project proceed to collect, analyze and process information? agreements and decisions be made? policies be set? roles and responsibilities be assigned? money and other expendable resources be spent and accounted for?

Once the answers to these questions have been provided, then the assignment of specific roles and responsibilities can take place and the strategies for carrying out the planning task can be developed.

During or immediately following the consideration of the controversial issues surrounding the launching of an environmental education planning program, as discussed in Chapter 3, an important step is to articulate the operating assumptions or underlying philosophies of the project to be undertaken. These will determine how the work will be structured, the effort communicated, and the results shaped.

These assumptions may well determine at the outset the nature of the final result. When one sets out to collect information in the situation assessment phase of the planning process, one must decide what to collect, from whom, and to what use it will be put. The decisions made regarding these three points necessarily reflect a set of operating assumptions or, as some describe them, implicit planning goals. More and more there is a tendency to make them explicit and to incorporate explanations of these assumptions into the statements of goals for the planning task itself.

Because they have a bearing, too, on the kinds of strategies to be applied toward achieving the goals of the project, a philosophical discussion of these operating decisions was included in Chapter 7.

Participative versus Elite Approach

One of the first things to be considered is where the responsibility will lie for the initiation and subsequent development of the master plan. A key philosophical element that should be examined, and some agreement reached, is the extent to which the effort will be participative or grass roots in its process rather than autocratic or elite, employing primarily experts. The results of both the questionnaire and the Estes Park Conference clearly indicate that more states were at least attempting to be participative, and involve a substantial cross section of people, than those who were keeping it to a small group of specialists.

Since conservation education had already been delegated to the educators, our study shows that a great many of the state master planning efforts were initiated by educators; second on the list were the various state agencies already working in programs related to environmental education, such as the state natural resource agency or the environmental quality agency. Others included the governor, the legislature, private organizations, environmentalists, and other interested citizens. (See Appendix C, p. 195, for a summary of questionnaire replies.)

Primarily, the development of plans was placed under the auspices of a state agency or combination of agencies, with three predominant patterns being indicated:

- Four states indicated that their plan was primarily drawn up by consultant experts.
- Four states indicated that it was drawn up by government representatives.
- Sixteen indicated the involvement of a cross section of citizens.

The Conference participants agreed that different kinds of people and a variety of individuals, groups, and organizations were considered desirable in the planning process in order to gain better input of information and data, to obtain both short- and long-range support for the effort, and because of the belief that "environmental education is too important to be left to the educators."

There were some reservations about the participative process, however, and some disagreement about the extent and use of the broad-based representation. It was pointed out that if people get too involved in debating what the objectives are, it can delay establishing concrete programs. On the other hand, there was the complaint that many times such representatives are only involved on a token basis and have little to do with actually preparing the plan. Against these two points is the notion that the master plan should represent the thoughts of the entire planning group rather than be written by professional educators or planners alone.

Possible roles and responsibilities for various individuals, groups and organizations participating in the endeavor were discussed by the Conference participants.

- Providing ideas, data and personal contacts.
- Helping to mobilize other people.
- Participating in planning sessions and workshop activities.
- Providing publicity, hospitality, etc.
- Helping to conduct some of the activities.
- Raising money.
- Assisting in writing part of the document.

- Special groups can make significant contributions in their particular areas of expertise.
- Keeping people apprised of progress was seen as being particularly important, and the use of newsletters or other means for spreading information about the planning effort was encouraged.

(Replies to the questionnaire, Items 18 and 19, which indicate the comparative extent of involvement of various special interest groups may be of interest here. The most involved were the educators, then government, environmental groups, individual citizens, private organizations and, last, business and industry.)

In addressing the value of participative approaches and the involvement of a cross section of the citizenry, emphasis was placed much more heavily on the importance of the individual and what he or she could personally contribute than on the group or organization represented. As a guide for choosing volunteers who will be the most productive, the following pointers were suggested. The individual being solicited for help should:

- Clearly have time to give to the effort, i.e., not be over-extended with other commitments.
- Provide evidence that he will become "involved."
- Not be part of a majority of volunteer or low paid students expected to do full-time work.
- Have some relatively high level of influence and commitment.
- Be politically non-partisan.
- Have some environmental or environmental education responsibility as part of his regular job.

The guidelines of the Office of Environmental Education for grant proposals made it clear that there must be a citizen organization closely involved with the master planning. Of those answering the questionnaire, 95% indicated that their project involved a council, board, trust, or similar governing or advisory body. Such councils originated in a variety of ways:

- Appointment by the governor.
- An ad hoc committee formed to prepare a preliminary master plan or proposal outlining a statewide EE program.
- One task force was the outgrowth of an existing advisory committee on conservation education, extended to become more broadly based.

- A legislative subcommittee extended its efforts to the preparation of a state plan.

In the case of completed plans, some indicated that their Plan called for a council to be formed although one may not have been used during the planning process.

Two-thirds indicated that the roles of these councils were clearly spelled out and that there were particular qualifications which the members had to possess. Some of those noted were:

- An interest and involvement in environmental affairs.
- Representative of a cross section of professions and differing backgrounds.
- Representative of various organizations, associations, agencies, interest groups, etc.

In 87% of the cases it was indicated that members of these advisory or governing bodies were not financially compensated, other than a few instances of travel and per diem allowances.

Some of the general purposes or duties of such councils, as listed by the various states, were:

- To identify problems, conditions, and needs of environmental importance on a statewide basis.
- To identify existing resources and inventory programs and activities dealing with environmental education.
- To help identify goals and objectives to be established in the state plan.
- To make assessments of the conditions in the state in relation to goals and objectives.
- To write or assist in writing the state plan.
- To coordinate statewide activities in environmental education.
- To be instrumental in implementing the plan.
- To act in an advisory role to an association, education department, state agency, etc.
- To recommend possible needs and areas for priority consideration.
- To make statewide policy decisions which would be carried out by regional and subunit organizations.

- To allocate funds to the regional or subunit organizations.
- To act as a reservoir for information on other states' accomplishments.
- To disseminate information to all persons interested in the environment and environmental education.
- To evaluate the effectiveness of the development of the statewide program.

In the light of the overwhelming amount of work represented by the above list, the importance of a working staff becomes clear. In responding to the questionnaire, 77% indicated that a working staff was used. Those to whom staff were accountable ranged from a govenment agency, to the organization holding the grant, to a council or task force. Of those indicating use of a staff, 78% stated that the staff positions were salaried, although three-quarters of them pointed out that the existence of a salaried working staff resulted from their having been assigned from other organizations or agencies. Staff functions included:

- To work with the council, board, trust, or similar governing body in inventory and needs assessment.
- To help design strategies and/or activities in the planning process and those recommended in the state plan.
- To coordinate activities of the planning process and keep the council, board, trust, etc., informed of progress.
- To publish newsletters, keep informed on planning and implementation progress by other states, and attempt to involve more sectors in the importance of environmental education.
- To write or assist in writing the state master plan.
- To perform any subsequent tasks or roles assigned to it in the plan document.

Planning and/or Implementation

Another concern at the outset is the extent to which there will be an overlap of the planning process and the efforts related to implementation. Two pertinent points became clear during the Colorado Master Plan process. They also emerged in the discussions at the Estes Park Conference and in our study of the master plan documents:

First, in employing a participative approach, people need to be doing something concrete. If the planner is unable to provide some tangible efforts with which people can become involved, many of them tend to lose interest, not only from a lack of action but as a result of the difficulty in convincing people that environmental education is something they should get excited about. Further, the concept encompasses such a broad spectrum that it is often lost in vague generalities and unrealistic goals. Thus, being able to involve people in local projects and to help them gain some tangible success is an important element.

The second point for consideration is the possible importance of spending time, early on when there is more energy, enthusiasm and maybe more money, to launch several pilot projects of the type that will inevitably result from the planning process and therefore appear as part of the recommendations in the final plan, e.g., a clearinghouse. This point will be discussed in greater detail in Chapter 14 on implementation.

CHAPTER 10.

SITUATION ASSESSMENT

Planning Climate

After completing the determination of the operating assumptions and the identification of the key participants, the planner should involve these participants in an assessment of the planning climate as a major working premise. Questions regarding the planning climate in a particular state might be focused on the following:

- What is the level and intensity of awareness, interest and commitment apparent among various key elements in the community?
- What is the political and economic situation in the state? What do the politically and economically powerful feel about the effort -- neutral, willing to follow along because it is publicly popular? -- a threat to their growth and development? -- a part of their genuine environmental concern?
- What are the resources available in terms of unencumbered (no strings) money from public and private sources for both planning and implementation? -- the number and quality of part-time and permanent staff? -- the number and nature of in-kind contributions, the nature of the restrictions on the known resources?

This activity leads directly into the first major step of a systematic planning process. In Chapter 5 we discussed the importance of collecting and assessing data about environmental problems and people's concerns and needs.

Taking the Inventory

Sources: To better understand the positions people take regarding problems, conditions and concerns, we need to think about the sources of the information collected and attempt to draw some generalizations. Information must be collected from a variety of sources; they may vary from state to state, but should include those who have expertise in the area's environmental problems and its education, those who have political or economic influence, and those who are simply taxpayers. Michigan and Colorado, for instance, systematically divided their total population into major segments:

Michigan

- Agriculture
- Business & Industry
- Citizen Organizations
- Elementary & Secondary Schools
- Government
- Higher Education
- Individual Citizens
- Labor
- Mass Communications
- Professional & Trade Associations
- Religious Organizations
- Youth Organizations

Colorado

- Business/Industry
- Community Services/Urban
- Education
- Environment
- Government
- Labor
- Media
- Minorities
- Professional
- Rural
- Student/Youth

One might also be concerned with the education level of the respondents, the nature of their training or skills, their income level, the ethnic group they represent, the types of jobs they hold, their ages, and a number of other factors.

It may be possible to generalize by comparing regional areas; for example, Northern California with Southern California or San Francisco with Los Angeles.

Methods: There is a variety of methods and techniques available for collecting [illegible] kinds of information required. In examining some of these methods, let's return to the three levels of problems expressed in the Environmental Education Act.

(1) At the first level, sufficient information about the quality of the nation's environment and the problems of ecological balance may have already been collected. Certainly there is a need for additional data, but for the purposes of planning an environmental education program at a state level the work already completed is probably adequate.

To find this data, one might begin checking with the state natural resource agency, the environmental protection or environmental quality control agency, the state university, especially the land grant college, and the local library -- even the Yellow Pages. In some states special commissions have been at work fulfilling the very task of defining the problems and the conditions today; and several task forces have been engaged in describing the future problems and conditions in terms specific enough to be useful in the planning effort. Of course, there are also the large number of books, magazine articles, and other printed materials prepared on this subject.

The one area on which the planner probably will wish to focus is that of determining the level of concern about environmental problems. One way to accomplish this is the public hearing, although this has lost some of its favor in recent years. A second approach is the more informal method of engaging a panel and audience in an open-ended and free-wheeling discussion of problems and concerns. A third is the workshop format where people working in small groups generate answers to sets of prepared questions. Still another approach is that of using pencil and paper instruments: Present a set of problems or concerns and have the respondents list them in order of importance. Finally, there is the combination of any of these approaches.

(2) The second level problem is the understanding by the public of the nation's environmental problems and need for ecological balance. Here one is seeking answers to the question of the level of people's awareness, the kinds and amounts of knowledge and understanding, and the kinds and degrees of skills and abilities. One is also interested in gathering information regarding attitudes, values and beliefs.

Some of the methods described above may be valuable here as well. Probably the most practical approach for getting good information on a large scale is either through the use of simple paper and pencil instruments or through individual or small group interview techniques. In either case, one should be careful to generate information from a random sample of the population, stratified across significant groups, so that the data forms the best possible baseline. Several instruments have been prepared to elicit the information requi[illegible]t this level. One of them is a battery of tests produced at Syracuse University.* If the planner wishes to construct his own instruments, consultation with a specialist in this area is suggested to insure that the kind of data generated will be accurate and useful.

For the areas of environmental problems and people's awareness, knowledge, etc., an approach known as unobtrusive measures is becoming increasingly popular. Here one sets out to observe and measure certain phenomena in the environment (such as the amount of certain pollutants in the air, obtained from published reports) as a means of determining the condition of the environment, or to observe and measure certain behaviors of people (as shown by the number who purchase special high altitude needles for automobile carburetors, for instance) as a means of determining their attitudes and concerns. Appendix F (p. 237) contains references to sources of information on unobtrusive measures and other measurement and assessment techniques.

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*David J. Kleinke and Eric F. Gardner, Syracuse Environmental Awareness Tests -- Level III: Final Report on Construction and Norming, Syracuse University, Syracuse, N. Y., 1972.

(3) The third level of problem is the lack of resources for educating and informing people about environmental problems. Here one is concerned about the variety of needs people have, in order to proceed more effectively with environmental education activities, and the resources available. Collection of this data is a very important aspect of a comprehensive planning effort. An attempt should be made to inventory existing services and resources and to assess the level of interest of those who have responsibility for program implementation. The survey should include, if possible, assessment of the interests and capabilities people might have in the future to provide resources and services or to engage in program activities.

One approach for getting the kind of information required regarding resources, services and needs is to circulate printed forms among those who have the needs and those who provide resources/services or may provide them in the future. A second approach is to conduct a series of interviews, either individually or in groups. In an interview setting one can get more clarification under certain circumstances, whereas data collected through use of printed forms is more easily manipulated.

Appendix G (p. 263) includes some forms that have been used to gather information about resources, services and needs which may be useful either in their present format or as background for developing a form tailored to one's own particular situation.

Before getting too far into the process of collecting information, of course, one should determine a means for classifying or organizaing the information. Appendix H (p.   ) contains some classification schemes that have been used, several containing examples of problems drawn from work done using the particular scheme illustrated.

CHAPTER 11.

GOALS AND OBJECTIVES

"Building the Plan" is the third phase in the process overview outline (p. 35). To quickly review:

To build the plan itself, one begins by formulating a comprehensive set of environmental education goals, drawn from the determination of needs in the assessment process just described. Additional pre-program assessment data must be collected to establish a baseline for the level of attainment of the objectives. A parallel activity is the identification of the constraints. Development of alternative strategies to overcome the constraints, and to carry out the recommended programs in such a way as to achieve the objectives, follows. Finally, given the strategies, one must determine the specific resources required for implementation, locate them, and secure resource commitments.

In this chapter we will discuss how to formulate goals and objectives. The following chapter will be devoted to the development of strategies to achieve the objectives.

The Development of Goals and Objectives

In Chapter 6 we discussed the fact that goals and objectives form the basis of a systematic approach to planning. They are the link between the expressed needs and the program activities recommended to meet the needs. The goals give overall direction to the project; the objectives are the observable and measurable conditions which one is willing to accept as evidence that the goal is being met.

State planners must deal with two types of goals, the goals of the planning task itself and the goals of the environmental education programs recommended as a result of the planning effort.

Goals of the Planning Process

Our primary source for the goal statements pertaining to the planning effort is the task groups who addressed this issue at the Estes Park Conference. In order to organize or classify them, the participants concluded that there were three sets of process goals which must be addressed:

- Of primary importance are those goals that establish the direction for the work to be done in formulating the plan. They describe in general terms the intended results of the process or procedure to be employed. For example, one goal might be:

> To produce a state environmental education plan that accurately represents the opinions of the people of the state concerning the state's environmental problems and educational needs.

An example of one objective might be:

> To identify the priority environmental education needs that accurately reflect the opinion of the state's population. Accuracy is to be ensured according to a stratified random sampling model in which citizens will be polled according to all relevant interest groups (business and industry, environmentalists, rural groups, etc.), in sufficient numbers, and representing each geographical location in the state.
>
> The evidence which will indicate whether this objective is achieved will come from the sampling model: Were all relevant interest groups represented? Were there sufficient numbers of people in each group? Was each geographical location represented?

- The goals of the "products" of the planning effort must be determined and articulated. These include the goals of the master plan document.

- There are also goals for the planners themselves; that is, the intentions and directions to be taken by the planning group -- the staff and all those who participate in advising or directing the formulation of the plan.

The complete set of goal statements produced at the Conference is presented in Appendix I (p. 273). They are offered as check points only and to serve as examples from which to select or with which to build one's own list.

Methods of Determining the Goals

To determine the goals for any of the three kinds described above, as well as the goals for the statewide program resulting from the planning effort, the following approaches have been used:

- Conducting public meetings on a statewide or regional basis to gather input from the general citizenry.

- Assigning topics or priority program areas to interest committees for consideration.
- Conducting workshops with representatives from various interests and backgrounds.
- Sponsoring statewide conferences to receive input from various sectors of the state on the process and the content.
- Conducting interviews or meetings with individuals and small groups throughout the state.
- Receiving input from questionnaires, surveys or similar mass group methods.

Program Goals Resulting from Planning Efforts

One of the results of the planning process was the development of statewide environmental education program goals and/or objectives. Not all of the states actually called them goals or objectives -- many were listed as purposes, aims, or recommendations -- but each state produced goals which could be classified in at least one of the three levels of problems described in Chapter 5: (1) the environment and ecological balance; (2) citizen awareness, knowledge and understanding; and (3) resources and programs necessary for educating the citizenry. For example:

1. To lower the level and/or intensity of air and water pollution.
2. To promote knowledge and understanding of ecological principles and a change in attitudes and values concerning the environment.
3. To train personnel from formal school systems, environmental organizations, media and others in both the content and methodology of environmental education.

Additional goals are presented in Appendix I. These were developed by combining and summarizing the goal statements in the Master Plan documents as well as from the work done at the Estes Park Conference.

A difficulty experienced in using almost any of the goals listed is the failure to reach agreement on the meaning of key terms and phrases (e.g., "quality environment," "environmental ethic," "life styles conducive to. . . .").* This shouldn't cause too much trouble, however, if we keep in mind that people will ultimately make up their own minds and that the planner's responsibility, from a program point of view, is to present a balanced approach. That is, instruction should be multidisciplinary and provide information about both the present and future conditions of the environment from points of view ranging from conservation and preservation interests to those representing industries with the most voracious appetites for nonrenewable natural resources.

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*For a helpful discussion of "quality of life," we suggest you refer to The Quality of Life Concept prepared by the Office of Public Affairs, Environmental Protection Agency, U. S. Government Printing Office, 1973.

In writing goals, therefore, one must consider not only the conditions and consequences to the natural environment but the conditions and consequences to the social, economic, and political elements of the man-made environment and to the status of man's relationship to other men and to himself.

Finally, there is one more differentiation which should help in organizing and classifying goals and objectives, and may help to provide the bridge between goals and objectives and developing the strategies for achieving them -- formal and non-formal education.

- Formal education includes any education which occurs as a part of the programs or activities of an educational institution, i.e., teacher preparation, curriculum development, etc.
- Non-formal education includes such things as newsletters, film, TV, radio, speeches, and any other type of education which occurs outside the formal education structure.

It is important that both be considered because of the tendency of most people to think of education as occurring only in the arena of formal education. Environmental education must be provided for everyone.

CHAPTER 12.

STRATEGIES FOR ACHIEVING THE GOALS

Some basic considerations in the determination of the most effective activities and methods to be employed in accomplishing the goals and objectives of the project have already been discussed in Chapters 7 and 9.

Another important element in building strategy is the early identification of the constraints on the project. By developing methods for overcoming the constraints, one automatically begins to strengthen the basic strategies required to assure success in achieving the goals of the planning or implementation effort.

Identifying the Constraints

There are a variety of methods available for identifying constraints. Among them are brainstorming lists of possible constraints, keeping a diary or log of local planning issues, and/or gathering such information from the reports written about the progress of the planning effort. Once identified, the constraints should be rank-ordered according to which present the greatest obstacle to effective planning. Then the planner can begin to develop strategies to overcome them.

According to the respondents to the questionnaire, the most serious constraint to the planning process itself was a lack of time, a close second was a lack of money, while a lack of qualified and interested people was a distant third. In terms of their importance in a rank order, funds came in first followed closely by both time and human resources. (No effort was made to distinguish between internal and external constraints in the questionnaire, and no questions were asked about equipment.)

The planners assembled at Estes Park indicated that the following were the constraints they faced in doing state planning:

1. External or "environmental" constraints, in no particular order of priority.

   - Deadlines for completion of part or all of task too close -- time too short.

- Money not directed to supporting the planning personnel.
- Inability to attract qualified people.
- Mistrust of the planning group or agency and/or lack of credibility.
- State laws and agency policies and regulations which prevented certain key actions.
- Conflicts, rivalries and jealousies between organization holding responsibility for planning and the others involved.
- Apathy and lack of commitment to the program.
- Lack of clear assignments of roles and responsibilities, especially for leadership; and inability or lack of interest in assuming assigned roles and responsibilities.
- Agency/organization/institution resistance to new programs and new costs; and priorities placed on efforts in areas outside environmental education.
- Lack of understanding and/or agreement on the part of agencies/organizations/institutions regarding the meaning or importance of environmental education; the approach to planning being employed or the structure of the task; and/or the need or value of statewide EE planning.
- Conflicts with and lack of understanding of the nature or importance of culture, lifestyle, political and economic powers, etc., in contemporary American/worldwide society.
- The nature of formal education with its emphasis on the cognitive and lack of emphasis on values, attitudes and beliefs.
- Institutional rigidity and bureaucratic inflexibility.
- Lack of expertise in and experience with ecology and environmental studies

2. Internal constraints, in no order of priority.

- Inability to find effective balance between money, man-hours and equipment.
- Need to rely on volunteer staff work.
- Resistance of planners to new programs and new approaches.
- Unwillingness or inability to involve or take into account the needs and concerns of a broad cross section of the state's citizens.
- Inability to deal or work effectively with those having power and influence.
- Conflict among planners regarding roles and responsibilities; and inability or lack of interest in assuming assigned roles and responsibilities.

- Inability of planners to communicate with each other and to solve problems in their own working relationships.
- Lack of planning priorities or conflicts among planners over stated priorities.
- Disagreement with or lack of understanding of the need for or value of statewide planning, of the approach to planning being employed, and of the meaning and/or importance of environmental education.
- Conflicts with or lack of understanding of the nature or importance of culture, lifestyle, political and economic power, etc.
- Rigidity of policies regarding approach and outcomes of planning.
- Lack of knowledge and skills in planning and/or ecology and environmental studies.

Methods to Overcome the Constraints

Probably the most common method to determine how to overcome constraints involves brainstorming a force-field analysis with the application of some form of creative problem solving. Instructions concerning this method are presented in some detail in Appendix J (p. 279).

During the Estes Park Conference, the participants generated the following random list of approaches which might be employed. It is not matched with the list of constraints, but suggests ways to attack some of the problems.

- Match the expected outcomes of the planning process to the time, man-power and other available resources, including lowering one's expectations.
- Gear the effort to a series of short-term outcomes which increase assurance that there will be some visible success.
- Create a planning strategy which:
  - accounts for the money directed to pay salary and/or support of planning personnel,
  - continuously investigates the availability of additional money and other forms of in-kind support,
  - gains knowledge of laws, policies and regulations and set up tasks which do not conflict with these issues,
  - spells out explicit roles and responsibilities, and provides for clarification, check-off and acceptance from those to whom assigned,

  - provides opportunities for meaningful and challenging involvement with the process through simulations, games or other workshop-like activities, making it possible for people to work with real problems in both short- and long-term ways, and
  - makes provisions for clarification and overt acceptance, modification or rejection of the meanings and/or purpose of environmental education, the planning process employed, and other similar issues over which there are disagreements and conflicts.

- Seek and encourage leadership from people who generally agree with what is being done, its purposes and its methods.
- Solicit support from citizens by involving them in the tasks of planning.
- Prepare for people's desire and concern for action by either being able to effectively postpone action without losing their support or by providing relevant and meaningful tasks for them to undertake prior to the full completion of the planning process.
- Be willing to compromise on approach and methods and to discuss or consider changes in goals or purpose -- flexibility and open-mindedness.
- Be prepared to explain clearly what the planning effort is and why it is being undertaken.
- Have well advised and well worked out strategies to deal with the political and economic realities -- a real world as opposed to "ivory tower" approach.
- Have at least one full-time staff member to make citizen contacts and to handle the logistics and production requirements.
- Provide a means to keep the public involved with the effort and informed about progress and/or problems, as well as informed about all the good things going on in EE in your area.
- Continuously work to keep the planning effort and its accomplishments in front of the mass media.
- Secure visible political support by convincing candidates, under the duress of elections, to make public commitments to environmental education as well as work especially hard for support from legislators holding key committee or party positions.
- Prepare strategies which encourage participants at all levels to deal with attitudes, values and beliefs (including the re-examination of societal goals and values, developing ways other than dollars to account for decision making, dealing with the necessity and nature of change) and to challenge and debate the values which underlie GNP, progress, growth, etc.
- Open up participation to people and groups traditionally or typically excluded, and work to build communications and cooperative relationships between and among people who typically do not communicate or work with each other.

- Devise ways to improve the quantity and quality of resources by using existing resources more creatively and by finding a wider variety of resources through new working relationships, networking, and the involvement of other kindred souls.
- Find new and creative ways of dealing with the formal educational system.
- Make a continuous attempt to creatively reward the efforts of the people involved in the planning.
- Formalize efforts with the planning personnel to continuously upgrade their individual knowledge and skills in many facets of planning, environment, and education.

Environmental Education Programs and Activities

In carrying out the charge of coordinating environmental education in the state, a variety of programs have been instituted or planned to create a more environmentally literate citizenry. These programs deal with both formal and non-formal education.

In formal education, programs and activities have been designed to integrate the resources of the state such as the public school system, private and parochial schools, universities, and governmental agencies involved in programs related to the environment and environmental education.

Examples of programs and activities designed for formal education include:

- Developing curriculum materials to be used in the K-12 school system.
- Providing materials geared to various grade levels, such as books, films, etc.
- Developing non-disciplinary curriculum materials and teaching methods.
- Conducting research and development and assessment of implementation of programs.
- Conducting pilot projects capable of replicability.
- Providing pre-service programs for teachers on the environment and the value of environmental education.
- Providing programs designed to enhance in-service teaching.
- Providing programs at the post-high school level (vocational, university, adult education).

Non-formal education programs are also vital to the goal of total involvement of the general citizenry. One planner indicated that this is a "neglected but emerging area, where much of the action is." Such programs are designed to reach those individuals who are outside the formal education system, but who should play an integral part in dealing with environmental matters and environmental education. Groups to which such programs are addressed include voluntary organizations, governmental units, churches, business and industry, labor, and the general public.

Guidelines for designing programs and activities in non-formal education include:

- Allow for maximum interaction between these groups so that a concerted effort can be made in environmental education.
- Plan to involve the interaction of both formal and non-formal education so that there will be total community involvement in the environmental education process.
- Solicit information, materials, etc., from groups that deal with matters of environmental importance.
- Encourage these groups to become involved in environmental education.
- Provide for programs and activities designed for the general public to be disseminated and communicated through various forms of mass media.

New York, especially, stressed the phrase "total community involvement." This section is adapted basically from its stated position.

Some of the states believed that regional environmental education should be established to meet specific needs. Some of the reasons given:

- Various areas in the state are relatively homogeneous, having populations with similar needs and aspirations.
- Due to the size of the state, regional divisions would facilitate implementation of the state plan.
- More local input could be made by establishing regional divisions.

In those states recommending or actually establishing regional divisions, some were artificially created and some coincided with political divisions, planning divisions, economic divisions, etc. Functions of regional divisions were listed as:

- To meet the environmental education needs of the individual regions.
- To be responsible for carrying out the directive established for its role in the state plan.
- To initiate programs applicable to local needs as well as establish program guidelines replicable on a statewide basis.
- To work in concert with other regions and maintain a flow of information, materials, etc., with other regions as well as the state level operation.

Most state plans providing for regional divisions also recommended that a regional center be established for coordination of activities and for accountability to the state level organization.

The Tennessee Valley Authority planner* assumed that developing strategies for achieving the objectives of a comprehensive plan began with a listing of, and agreement on, the types of programs to be included. As a guide, he came up with the following list of program categories:

> Communications, including a clearinghouse and the use of media to reach all target groups, to be implemented by a "central environmental education planning unit."
>
> Training related to environmental education, including the training of managers, technicians, individuals from trades and labor, school administrators, teachers, lawyers, etc.
>
> Planning, including such things as assisting with planning as it relates to master plans for environmental education, development of workplans, curriculum plans, and special programs on environmental concerns [technical assistance].
>
> Curriculum, including educational classes for preschool, elementary, secondary, vocational, higher education, continuing and adult education.
>
> Community Projects, including such things as environmental awareness projects, clean-up campaigns, recycling centers, political efforts, public meetings and hearings, and special programs on environmental problems.
>
> Materials, including the development of audio-visual aids such as films, film strips and slides; enrichment material dealing with population, energy, air, water, etc. (resource use problems); and textbooks and workbooks.

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*Jonathan Wert, "Proposal for an Environmental Education Program for the Tennessee Valley Authority," TVA, Knoxville, Tennessee, 1973.

Facilities, including the development and operation of community action centers; environmental study areas; outdoor education or nature interpretive centers; parks, zoos, museums; and recreation and camping facilities.

Another useful list of program categories is that found in the 1972 USOE/EE guidelines under Type C Proposals, Pilot Projects and Demonstration Models:

Personnel Training -	Inservice Educational Personnel Inservice Noneducational Personnel Preservice Educational Personnel Inservice Noneducational Personnel Government Personnel
Community Awareness -	School-Community Models Environmental Education Centers Citizen Participation Projects
Instruction and Curriculum -	Elementary and Secondary Programs Supplementary Materials Curriculum Development (including Media Projects)
Evaluation and Dissemination -	General Evaluation Dissemination (including Information Clearinghouses)

Implementation as a Parallel Activity with Planning

The time involved from the inception of planning through the planning process, writing and publishing the plan documents, and ultimate implementation of the plan has varied greatly; but a generalization indicates that the planning process usually involves two years. For this, and other reasons discussed earlier, many planners now feel that implementation of certain program recommendations can, and often should, take place while continuing to develop the remainder of the plan.

As mentioned earlier, it is possible to have enough information about environmental conditions, problems and concerns, and about educational needs, very early in the planning process so that a specific program recommendation and set of objectives can be developed. One of the most obvious of these is an environmental education resource clearinghouse.

The concept of a clearinghouse varies in its form and substance from state to state, but 40% of those states responding to the questionnaire indicated that such an entity was needed. Here is a sample and summary collection of purposes for an environmental education clearinghouse or center:

- To act as a focal point for collecting and disseminating information, supplies, materials, etc., on environmental education.
- To monitor all environmental education activities in the state.
- To provide information or referral to individuals interested in some aspect of environmental education.
- To develop techniques of data collection, cataloging and storage of environmental education material.
- To evaluate the effectiveness of environmental education programs in accomplishing their goals.
- To investigate possible programs which will aid in the promotion of environmental education.
- To coordinate environmental education activities or programs in the region or on a state basis.
- To be accountable for disbursement of funds.
- To review or prepare grant proposals for environmental education programs or projects in the state.
- To distribute funds to other subcenters, regions or on a state basis.

Other program areas in this category, drawn from the effort in Colorado but clearly a part of many other plans, are (1) the training of environmental education personnel, (2) mass media environmental education programming, and (3) technical assistance. (Appendix K [p. 283] contains a paper explaining technical assistance, references to sources of information on training, and references to sources of information on environmental education and mass media.)

Organizational Structure

Closely tied to the system of matching strategies and methods to the goals, measuring outcomes, and providing feedback, as described by the goal-referenced model, is the development of an organization. This is especially critical to the implementation phase.

Too often, from a planning point of view, this step is not accounted for. Either it is not a part of the final set of recommendations or it is simply mentioned with no provision for putting it into operation. Thus, the effort becomes leaderless and badly spread out. The result is a document and a turned-on set of people, but no organized way to implement or carry out the recommendations of the document.

Of course a variety of organizational structures can be employed. Because this book is written with a bias toward the use of a systems approach, we suggest that kind of organization structure. The entire work by Churchman, referenced on Page 17, is a systems organizational model useful in environmental education planning and implementation. Another is that described by Ackoff and Rivett.* They propose a system having the following four basic elements:

- Content -- which in their terms means men, machines, material and money
- Structure -- a functional division of labor
- Communication -- the flow of information within the system
- Control -- the ability to evaluate performance and change in order to improve

This system can easily be applied to the master planning effort. The most important content of the working system includes the individuals, organizations, facilities and funds which are committed to immediate action, and efforts must be made continuously to locate more and higher quality resources. This includes cash as well as in-kind materials, facilities and services.

Several forms of structure are discussed in other sections concerned with staff, advisory or governing bodies, and their respective roles and responsibilities. Structuring and assembling the content are linked together because usually we designate a resource in terms of its function. (For example, the need for librarians is a need for a content of people whose function is library activities, which therefore means we structure into the system the function of a library. When a paper company donates a load of paper, we have content in the form of materials which will be structured to perform a communications function.) Structure is especially important during the period of transition between planning and implementation, or as a bridge between the two in cases where they are concurrent activities.

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*Russell Ackoff and Patrick Rivett, A Manager's Guide to Operations Research, John Wiley & Sons, Inc., New York, 1963.

Since education is basically a communication process, any education system must include communications as one of its most important subsystems, e.g., an environmental information clearinghouse, newsletter, person-to-person facilities, contact with the public media.

Control is multi-faceted and continuous. Of primary concern is the development and implementation of evaluation and feedback procedures. The functions themselves -- evaluation, feedback, and continuous modification -- are not difficult, but getting people to carry them out is something else. A second facet pertains to holding people accountable for fulfilling their roles and responsibilities. Through effective evaluation and feedback procedures, one can determine whether or not things are happening and even how well. However, to increase the quantity or improve the quality of efforts may require the use of an escalating set of accountability procedures. Written agreements should be made as to who will do what, when and where it will be done, and at what cost; but it may require tactics ranging from salesmanship, through persuasion and arm twisting, to Jack Anderson-like public exposure to make the control system really work!

CHAPTER 13.

THE MASTER PLAN DOCUMENT

The primary product of the planning effort is the Environmental Education Master Plan document. The content and format of those documents so far produced vary greatly from one state to the next; but based on our review of twenty-one such documents, and the views expressed at the Estes Park Conference, some general guidelines can be set forth.

Before launching into the production of the document, the planner should consider exactly whom the plan is to reach and, more importantly, to involve. A technical, overly comprehensive plan is risky as an effective way of generating support from the general public, which is constantly bombarded with data of one sort or another. A plan useful for the broadest range of people should be short, concise and to the point; lengthy documents will lose the reader long before he has grasped the total picture.

In light of the above it might be worthwhile to consider the production of two documents. In the first, priority could be given to presenting a plan capable of general interpretation to be used for soliciting support and interest. The second would be a more detailed account, containing supportive material, lists of resources, committees, etc., for those who need the details. (In Colorado, an interim document presented the problems, needs and goals; a second document presented the recommended programs to meet the needs.)

The following list represents some specific purposes and uses of a Master Plan document:

- To provide a rationale for the statewide approach, for environmental education, and for the Master Plan itself.
- To articulate the state's general philosophy for environmental education and to set forth the state's definition and/or description of it.
- To begin to give some shape and definition to the official state position on environmental education and thus to serve as a guide to future efforts in this area.
- To provide a set of goals and/or objectives toward which future environmental education efforts are to be directed.

- To set forth the priorities to be used in allocating money or other resources. This may be done through the goals and objectives, the recommended program areas and/or the target populations to be reached.
- To provide an organizational structure with which to implement the effort.
- To set forth recommended methods, strategies, programs, etc., with which to achieve the goals.
- To designate the individuals, organizations and agencies responsible for carrying out various aspects of the plan and for effectively disseminating information to them as well as to those who are in a position to hold them accountable.
- To designate the target populations and to indicate the content and methods to be employed in working with each.
- To set forth the anticipated constraints and methods to be employed in overcoming them.
- To provide a sales document or prospectus for approaching funding sources.
- To articulate and explain, in terms understandable to the broadest cross section of the public, the future of environmental education in the state.
- To present a time table for implementation, evaluation, plan modification, etc.
- To provide an indication as to the costs of the efforts and, where possible, the costs of important components as well.
- To articulate the need for and the means to carry out both short- and long-term evaluations of the plan, the efforts it generates, etc.

The content of the master plan document will of course follow and be dependent upon the planner's determinations of its purposes and uses. Generally, it seems helpful to begin with a summary and rationale, followed by a discussion of the problems, conditions, concerns, needs, constraints, recommended goals and objectives, and strategies (programs or activities) proposed to reach the various population groups.

There should be enough detail in the Plan so that the various groups indicated or interested can begin to carry out specific actions. It should be comprehensive enough to cover the known possibilities and elements involved, while still allowing for creative and innovative additions or modifications by those taking action.

As examples, we have listed on the following page a suggested outline written by Dr. William Stapp of Michigan, excerpted from the paper presented at the Estes Park Conference, and the table of contents exerpted from the Minnesota Plan and Colorado's two documents.

A final note about the document: To many, the title Master Plan for Environmental Education connotes a final document. One shouldn't stumble over semantics. A state plan should be flexible and susceptible to change, and a document entitled a "Master" Plan conveys a rigid, formalized plan even though this is not its intent. A more appropriate title might be a Comprehensive Plan for Environmental Education, or some similar terminology. Perhaps the idea of a "first edition" with revised editions to follow may be helpful in this regard.

Suggested Outline of a State EE Plan

1. Title Page
2. Letter of Transmittal to Governor
   or Appropriate State Official by
   Task Force Chairman
3. Letter from Governor or Appropriate
   State Official Stating
   His Acceptance of the Plan
4. Task Force Members
5. Task Force Staff
6. Task Force Consultants
7. Foreword
8. Summary
9. Table of Contents
10. Chapters:
    Major Characteristics of a
      State EE Plan
    Development of a State Plan
    What is Environmental Education
    EE Problems in the State
    EE Needs of the State
    EE Goals and Objectives of the
      State
    Recommendations and Strategies
      to Achieve State EE Goals
      and Objectives
        - Overall
        - For Each Component Group
    Evaluation Procedure of the
      State EE Plan
11. Glossary
12. Appendices (including EE Resources
    of the State)

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    The Church
    Business-Industry-Labor
    Governmental Units
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Appendices

CHAPTER 14.

IMPLEMENTATION OF THE PLAN

Referring back again to the process overview outline on p. 35, the final phases are concerned with implementation of the programs recommended in the plan, evaluation and feedback. (Granted, this process outline represents an ideal situation, which may or may not be possible to the full extent described, but it is offered here as a guide based on experience.)

Prior to the conclusion of the planning effort, as many arrangements as possible must be made to assure that the plan and its recommendations will be implemented. Boiling it down to its essential ingredients, implementation rests first on the willingness of key public and private organizations and governmental agencies to assume and to exercise responsibility for carrying out the various aspects of the plan. Second, the operating funds must be available to those assuming responsibility for implementation. In many cases, however, much can be done without great amounts of cash. The planners must do all they can to obtain capital, but this has proven to be the most difficult part and not always the most important.

Therefore, since a great deal can be accomplished by traditional bureaucratic and entrepreneurial means, planners are urged to secure written commitments concerning the roles and responsibilities of individuals, organizations and agencies determined necessary for the accomplishment of the program recommendations. In fact, it is recommended that the plan be published only after these commitments have been secured. Further, it is recommended that the plan document set forth who is committed to do what and, if possible, who has refused to make commitments and why.

Implementation takes place only as the designated roles and responsibilities are carried out and resources for which commitments are gained are applied. Otherwise, the plan stands little chance of being more than another document collecting dust on a shelf. Quoting from Colorado's plan:

> The printing of these plans offers no guarantee to those who want environmental education that what they propose will be

accomplished. The only guarantee that exists is the interest and commitment of those who have taken part in formulating these plans to carry them through to successful implementation. This will involve the commitment of our own resources, as a test of our convictions, in the transition from participative planning to participative doing.

Roles and Responsibilities for Implementation

In most states, the present task is to catalyze a dynamic and begin implementation of the environmental education programs recommended.

Ideally, the state itself should assume this responsibility. Several of the states, in responding to the questionnaire, provided information about their own plans in this regard. Perhaps some or all of their ideas, presented below, will be useful in helping future planners secure State commitment to assume this responsibility:

- Gain a commitment from the Governor to appoint and support an Environmental Education Council; to reallocate certain education or natural resources money, discretionary funds, etc.; and/or to seek legislated appropriations.
- Gain a commitment from key State Legislators (with help from their constitutents) to introduce and push for passage of environmental education legislation and appropriations.
- Gain commitment from various key state and local government agencies to provide specific manpower, to reallocate some of their existing resources, and/or to prepare subsequent budget or manpower assignments to provide for environmental education.
- Gain commitments from institutions of higher education, public schools, etc., to make time, personnel, and/or money available to environmental education.

However, if the state cannot or will not assume leadership what are the alternatives? The Conference participants who examined this entire issue concluded that a broad-based citizen effort might well be the central focus.

It was suggested that planners work to build an association of citizen groups, with large numbers of volunteers. If done properly, such a group could become monetarily independent by drawing its members and its resources from business and industry, government, environmental and other citizen groups. The achievement of such balance would also be helpful in opening doors for legislation because of its non-partisan nature. And, not intending to be facetious, planners were urged to be realistic and not neglect to work with people who have influence, power, and money.

As part of the balance of broad-based support, however, the participants felt strongly that the Federal Government should continue its support through monetary grants as well as a variety of in-kind contributions, such as people, material, facilities and services.

Get started early! Forty percent of those states answering the questionnaire responded to the question, "If you had it all to do over again, what, if anything, would you do differently?" by stating they would have started getting their implementation plans under way earlier.

In the same vein, Conference participants were of the opinion that those who must finally accept responsibility for implementation should begin early to assume leadership roles. It was seen as important, of course, that leadership be assumed by people willing and able to assume and to exercise it. It was also important that there be someone, probably a staff of at least one professional with secretarial support, to oversee and follow up on implementation plans and efforts. The discussion on building an organization, beginning on Page 81, is applicable here.

One word of caution. While the broad-based involvement helps to mitigate against the compromise potential of single source support, and may strengthen the efforts to get political recognition and support for environmental education, it offers the possibility that the results will be of the lowest common denominator. In trying to please everyone involved, one runs the risk of pleasing no one. The end result of the whole effort, therefore, could be a great deal of talk but no action -- much like the situation that existed prior to the start of the statewide effort.

Getting the Educational Activities Under Way

In talking about implementation, specifically we mean the carrying out of those activities (strategies) which will lead to the achievement of the statewide goals and objectives. These strategies and activities most often take the form of individual and specific projects which, taken together, comprise the program area recommendations set forth in the state environmental education plan.

For example, in the program recommendation of teacher training, an individual project might be the in-service training for fifth and sixth grade teachers in the Mapleton School District. For mass media, it might be a series of 15-second spot announcements for use by commerical television stations to be used in their public service messages. The actual conduct of the in-service training in Mapleton, and all the other specific projects, is the implementation of the strategies and activities of the state plan.

Of course each project must have its own set of terminal and enroute objectives, those to be achieved by the end of the project and those to be achieved during the course of the project. Strategies or methods to achieve the objectives (including media and materials to support the methods) should be formulated; roles and responsibilities should be determined and commitments secured from those who are to implement them; and methods and instruments for evaluation procedures should be prepared. Figure 4 illustrates this process for an in-service teacher training project.

The major problem with most planning efforts is that the planners fail to fulfill their responsibilities with respect to the implementation phase by failing to provide for the full development of their program recommendations and by failing to secure and make public, for purposes of subsequent accountability, the necessary commitments from organizations and agencies. Goals and program recommendations are usually well expressed; the "how to" is often missing.

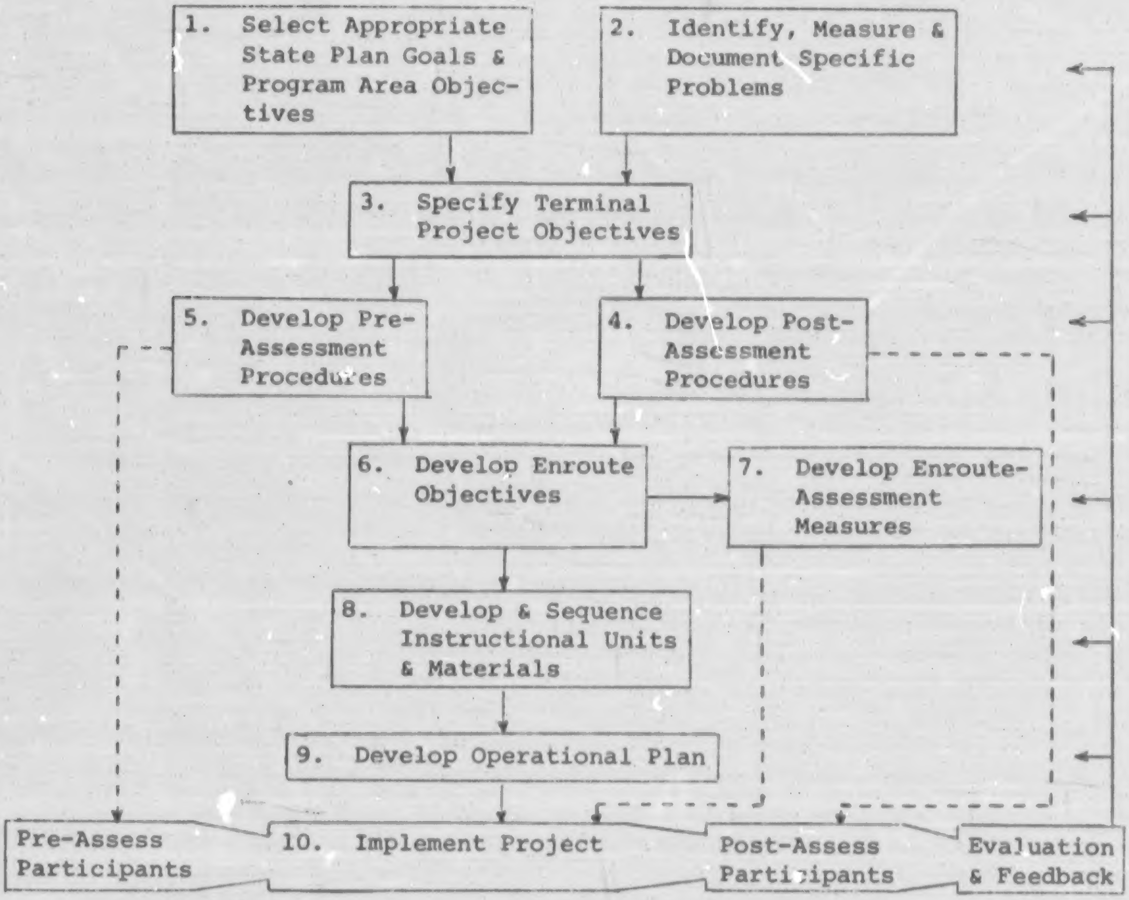
1. Select Appropriate State Plan Goals & Program Area Objectives
2. Identify, Measure & Document Specific Problems
3. Specify Terminal Project Objectives
5. Develop Pre-Assessment Procedures
4. Develop Post-Assessment Procedures
6. Develop Enroute Objectives
7. Develop Enroute-Assessment Measures
8. Develop & Sequence Instructional Units & Materials
9. Develop Operational Plan
Pre-Assess Participants
10. Implement Project
Post-Assess Participants
Evaluation & Feedback

Figure 4.

In-Service Teacher Training Project Design Model

CHAPTER 15.

EVALUATING THE EFFECTIVENESS OF THE STATE PLAN

The effectiveness of any state planning effort must rely on more than the kind words of its friends or the spears and arrows of its enemies. Provisions must be made and carried out to evaluate the effectiveness of the effort at several important points along the way. An evaluation scheme which could be applied to an environmental education planning effort has been described in Chapter 8.

Information collected through on-going evaluation activities can serve to affirm the effort or to aid in redirecting its resources. Ideally, this phase involves the testing and measuring of people (participants in the various projects) and/or environmental conditions in order to determine the results of the strategies and activities within the program area recommendations of the plan. The results are processed and analyzed, presented in some communicable form, and fed back to those conducting the projects. This data helps the planners/implementors in deciding whether to continue the activities as they are, to make modifications, or perhaps even to cancel them. Such information is useful in the long-range efforts to determine the extent to which the goals and objectives of the plan are being met, and helps keep track of the changes which occur in the environmental problems, conditions or concerns and in the range of needs.

This is accomplished at the individual project level by comparing the results at the end of the project with the results of the measurements taken at the beginning. (See Steps 3 and 10 in Figure 4 on p. 93.) At the regional or state level, or in terms of program area accomplishments, measurements (essentially the same kind as those used to get baseline data) are made at specific, scheduled intervals over the first three to five years of the implementation period. The data from these subsequent measurements are compared with the baseline data to show total change, and data from each measurement is compared with all the others to show incremental change or trends.

A systematic evaluation system can be applied to three aspects of the master planning effort:

1. Determination of the extent to which the planning process as well as the environmental education programs implemented produce measurable results, as evidenced by changes in the behavior of people or changes in environmental conditions or problems.
2. Determination of the extent to which the various operational elements meet the performance criteria established -- such things as leadership, coordination, technical assistance, data collection, storage and retrieval, dissemination.
3. Determination and comparison of the costs, resources, and benefits of a program. By careful cost accounting the amounts of money spent in attempting to achieve the various objectives can be determined. Because the objectives are based on a prioritization of needs, decisions can be made about the relative benefits of achieving the objectives with various given costs.

Throughout these measurements, special care must be taken to account for the resources variable. A great deal of the work during the implementation stage includes identifying and securing new educational resources, including commitments from additional individuals, organizations and agencies to assume pertinent roles and responsibilities. This could affect, even cloud, the more simple input-output, cost-benefit picture.

Important elements in such an evaluation are the roles and responsibilities for measuring and monitoring. In the transition from the planning process to the implementation phase, the Plan might call for a council or advisory board to continually evaluate the effectiveness of the Plan (its recommended environmental education programs) and to provide feedback to those charged with implementation. Provision might also be made to revise the Plan at some specified time (e.g., five years) in order to reflect the changes in values, attitudes and needs of the people.

Although evaluation, measurement and feedback are important elements of a systematic program design, doing a good job of it can be difficult and time consuming. Some state planning efforts have included an evaluation phase, but few have actually carried it out in much detail -- either because they lacked the skills, resources or disposition, or because not enough time has yet elapsed. In any case, not much experience has been gained thus far in the use of evaluation procedures of the comprehensive nature described here. Unfortunately, not many planners have even undertaken the collection of the baseline data required.

As sure as environmental education appears to be needed, there are those who will ask "Why?" In this day of accountability, one should have answers stemming from measurement of results. The evaluation scheme recommended here may seem tedious and difficult, but it will certainly help provide the answers.

For those who wish to delve more deeply into the subject, Appendix F (p. 237) contains a list of references for sources of information on measurement and assessment techniques -- especially measurement of values, attitudes, beliefs, etc.

Measuring the Success of the Planning Effort

The first step in the evaluation process is to provide criteria for evidence or indicators of successful achievement of each goal. In measuring the success or failure of the planning effort, there is a variety of evidence one can accept that the Master Plan and its formulation are or have been beneficial to the progress of environmental education generally and to the development and improvement of specific environmental education programs.

In selecting a set of indicators, care must be taken to differentiate them in terms of the three aspects of the master planning effort described above (changes in behavior and environmental conditions, performance of operational elements, and costs/benefits).

A second differentiation is between the criteria for indicators of a smooth, efficient, and effective planning process and criteria for the indicators of the success or failure of the efforts to implement the plan.

The participants at the Estes Park conference addressed the issue of evidence one might accept that a planning effort was successful. The indicators they came up with reflect their bias toward those written in terms of the success or failure of implementation. Their list included examples of each of the three elements described above, and is organized accordingly. Certainly not all of the criteria listed below are applicable to every state, but from among this list one can pick an appropriate set. Each of the indicators should also be modified so that they are used in a locally determined quantifiable form.

Changes in people's behavior and/or environmental conditions.*

- A measured change in some segment of the population's knowledge, behavior and/or attitudes.
- A measured change in a set of specific environmental conditions.

Performance of the operational elements.

- The extent to which the process and/or its products (the plan and its recommended programs) have been adopted by the state or local governments and other groups or individuals.
- The nature of the involvement of individuals, organizations, and agencies in the planning process and/or in implementing various aspects of the plan, in terms of numbers, kinds, and extent of involvement.
- The effectiveness of the effort to implement the recommended programs -- which ones were successfully implemented and why, as well as which were not and why.
- The changes that occurred in existing programs, in terms of substance or amount of the change and the people involved.
- The implementation of new programs, in terms of how many and what types.
- Increase in public awareness, determined by the amount and nature of publicity by mass media, PR literature, specific references to the master plan in other in-state programs, as well as before and after measurement techniques.
- Acceptance by community leaders, in terms of their taking and exercising the responsibilities outlined for them in the plan or by the receipt of money from business or local foundations.
- The involvement of people not previously working with environmental education, and the emergence of new leaders.
- The existence of an organizational structure which survives the formulation of the plan, including some permanent staff and/or a representative citizen organization such as a state environmental education association or council.
- An increase in the number and quality of requests for technical assistance and a similar increase in the capability to meet and follow up on them.
- The establishment and implementation of environmental clearinghouse activities.

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*Of some overall importance is the correlation coefficient between behavior and conditions; there is a need to begin work on this problem.

- The local publication of a newsletter or journal on environmental education and related matters.
- An increase in the level of cooperation and communication among environmental education groups.
- An increase in the number of politicians who talk about the master plan effort and/or who are willing to work with the planners.
- Provisions for and subsequent carrying out of revisions to the state plan.

Costs, benefits and resources

- Cost (input) versus benefit (output) and value of results of the various programs:
  - What was the total cost in dollars, man-hours, materials or other measurable input for a given program?
  - What was the total cost of the input for each measurable unit (numbers of people, new programs, etc.) of output?
  - What are the comparative costs among programs having similar output?
- Amount of increase in the level of funding for environmental education programs from federal, state, local, public and private sources versus the amount of input required to generate it.
- The ability to generate additional in-kind resources, such as staff or support personnel time, use of equipment and facilities, library access, etc., as well as resources like gifts of materials or money.

It should be clear, however, that it may take quite some time, years perhaps, to collect and assess the indicators listed above. Those associated with the master plan effort in Colorado are certain that many of these indicators of success are present at this time, but it is difficult to measure just how much the Master Plan did to provide this evidence as contrasted to how much came from the Olympic Games issue, for instance. Much more time will be required for an accurate assessment, more time certainly than the amount of time spent thus far on the planning effort.

PART V

WHERE DO WE GO FROM HERE?

CHAPTER 16.

AN ASSESSMENT OF THE PRESENT STATE OF THE ART AND DIRECTIONS FOR THE FUTURE

This report has tried to show what has been going on in state planning throughout the country during the past several years. An analysis of how far we have come and just where we are at the present time is a little more difficult. Assessment data on something as new and developmental as environmental education is fragile.

The conclusions in this chapter are going to be personal observations. We said earlier that this work does not pretend to be a full-blown research report. However, we used a number of modes to gather data and, while they certainly did not reach into every nook and cranny, we are satisfied that we have information sufficiently representative with which to draw some pretty accurate generalizations.

One thing is clear. The experience of the past three years has, on balance, raised more questions than it has solved. These questions are all factors to be considered in a discussion of the present state of the art and possible directions for the future.

What are our goals -- really -- in launching a major effort to produce a state master plan for environmental education? What are our goals with respect to the environment? with respect to education?

It is difficult to see very clearly yet what role master planning will have in attacking and solving environmental problems. We have discussed here the need for environmental education planning to be compatible with a definition of environmental education which everyone seems to agree should be problem-focused and in compliance with the Federal law in terms of the three levels of the problem presented. However, in the questionnaire respondents were asked to rank order their reasons for developing a master plan. Ranked first in an eight-item list was "the most effective way to promote environmental education in the state" while "the best way to attack environmental problems" was ranked last. Most of the plans published so far fail to address environmental problems squarely; some fail to address them at all.

Do we want fewer environmental problems in the future or do we just want those problems we already have to be solved? Which problems are most important to whom? Which of them should be attacked first? Who decides? There is no clear national policy to answer such questions; the Environmental Education Act simply says "improve the quality and maintain the balance" of the environment. This statement is both general and debatable. What is quality for one man may be a burden for another. Ecological balance is even more poorly defined or understood. Further, the energy crisis makes it clear that we are likely to shift our emphasis quickly concerning the priority of any given problem. A few months ago we were concerned about cleaning up the air and water; we now seem willing to overlook many pollution problems, at least in the short run, so that there will be more available energy.

What role does education play? Do we want people just to know and understand more? Many say that is all "education" is responsible for. We found very few planning efforts sponsored by state departments of education willing to take a firm stand for much more than this. Or do we want to change people's attitudes, values, and behaviors? If so, which attitudes and values are "correct?" Which should be changed? Which behavior is "bad" and which "good?" Are such things "taught" by indoctrination and behavior modification techniques? Or are people allowed to make some personal choices? Who decides? These questions are difficult but they are at the heart of the kind of education we're talking about. This sets up a series of very difficult decisions for those engaged in planning and implementing environmental education programs. Just as with environmental problems, there is no national policy regarding people's attitudes, values and behaviors. And we have not seen from the master plans any coalescing of views on these issues; in fact, few plans have dealt forthrightly with them.

Who is responsible for education and on what kind of programming should we place our emphasis? One-third of those responding to our questionnaire indicated that their plans would be directed entirely at formal education, while two-thirds indicated that both school and non-school populations would be involved. But there are no prescribed answers and no consensus as to where the responsibility lies in each instance.

In assessing the state of the art, one must also consider the fuzziness of the task. Planning itself, but especially its results, has always been difficult in the so-called soft areas such as education It seems much easier for planning to occur and for people to understand and therefore implement plans which lay out a transportation system or land use and zoning plats. Asking people to implement education programs where articulating concreteness and specificity is not really possible is much more difficult. Which leads us to the question of just how much does a comprehensive plan have to cover? All of education? All the problems and all the issues of attitudes, values and behaviors? Or should we narrow our sights and be selective? Most of the plans have been rather selective, attempting to narrow their targets (recipients of their programs) as well as the form and content of their environmental education programs.

The role of the Federal Government is an important consideration in the assessment of the state of the art. Congressional passage of the Environmental Education Act has given impetus to the movement. It has placed value on environmental education, and given legitimacy and urgency to environmentally-oriented education activities around the nation. Because of the way the law must be administered, however, the decision-making power has been retained in Washington. To the extent that this Act is environmental education's principal resource, the Federal Government has tremendous responsibility for initiating and following through on policy which results in accomplishment. Considering the complexity and scope of the problems with which environmental education tries to deal, it seems likely that without national leadership and coordination, efforts to address the most major of these problems will fail.

However, the Government exemplifies some of the problems and questions we've just been discussing. For example, the U. S. Office of Education has failed to make clear their long-range plans. Short-range guidelines are published each year; and in the case of state master planning, funding was provided in only two years and states did not receive the support they were led to expect. Congress passed the legislation, but did not appropriate the funds necessary to adequately support it. This has and will continue to freeze the behavior of the Federal Government.

Therefore, although thousands have been spent in an initial planning effort, relatively speaking only hundreds have been expended to implement the programs set forth as a result of the planning. Only one state,

1.0
2.8
2.5
3.2
2.2
3.6
4.0
2.0
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1.8
1.25
1.4
1.6
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS - 1963 - A

New Jersey, has received federal support specifically for the implementation of its master plan -- and this money was not appropriated from the Environmental Education Act (PL 91-516) funds. The importance of planning in an endeavor as large and all-encompassing as environmental education notwithstanding, emphasis at the federal level has been on the funding of discrete programs that are immediately visible in terms of their reaching the ultimate consumer rather than on the longer-range results possible through comprehensive state plan programs.

What about the role and the capabilities of the state governments? Many states launched a planning effort on their own or shared the burden with the Federal Government; but for the most part they have been unable, thus far at least, to carry through with the implementation of the programs recommended in their master plans. That is not to say there are no environmental education programs going on in the states, but to our knowledge only two states -- Hawaii and Wisconsin -- have supported the implementation of their state plan as such. Legislation has been passed in Florida, New Jersey, Minnesota, Wisconsin and Hawaii, and is being considered in a number of other states. But, compared to the less than $8 million in PL 91-516 funds, which seems inadequate given the enormity of the problem, all the State money put together is less than half that amount.

Which leads us to the role of money as a contributing factor to the present state of the art. Money seems to have had a good and bad effect. We have placed an unholy reliance on dollars at the state and local levels, and the only source of dollars seems to be the Federal Government. In most states where federal funds have not been available following the development of the master plan, the efforts are now bordering on collapse. Planners of course are reluctant to abandon ship and hope that it is only a period of hiatus.

On the other hand, not having a great deal of money may in the long run be of some benefit. There surely is a need for more self-reliance at the state and local levels. Maybe this is where the whole effort is headed; perhaps this is, in fact, part of the solution to environmental education. Either the environment and its effects on people is a problem and a concern, or it is not. If it is, people will support environmental education because it is in their own best interests to do so. Once people begin to understand that they cannot rely on hard cash from the usual sources to implement their plans, perhaps they will take it upon themselves to raise the money to put those plans into operation on their own. These lessons may also be of some benefit to future planners in that they might approach the planning task somewhat differently if they are convinced in advance that very little, if any, money will subsequently be available for implementation.

In any case, implementation of state plans for environmental education is left hanging in the balance. In the final analysis, the success of a state plan cannot be judged in terms of how nice the plan document looks, how many pages it contains, how many copies were distributed, or how many people were involved in the formulation or approval of the plan. It is how much environmental education results from it that counts.

The dimensions may become clearer if we take a look at the activities in the various states related to their planning efforts and implementation of their plans in the light of the evaluation criteria listed in Chapter 15.

New programs under way: Major activity in this area is almost inextricably tied to the availability of funding. The most active state for new programs is New Jersey, who has had the benefit of several million dollars from the Federal Government earmarked specifically for implementing its master plan. In Hawaii, while not a great deal of money was available, the specific program focus was quite narrow and the funds allocated by the state apparently are sufficient to carry out their proposal. Although Wisconsin has recently secured funding for its plan, the amount allocated did not meet the requirements of the entire plan and priorities are now being determined for how the money will be spent. Florida too has launched a number of new programs recommended in its plan, through a specific budget request on the part of the State Department of Education.

Several other states claim the start of new environmental education programs, but there is no clear evidence that these were a direct result or in any way dependent on the state plan, the intangible influence of the plan notwithstanding.

Changes in existing programs: The majority of the states who undertook master planning activities experienced changes and improvements in existing programs. In Alabama, public awareness and organization for environmental problem solving have certainly improved. In Colorado, the in-service teacher training effort is on much firmer ground and is more comprehensive as a result of the plan. In Michigan, Wisconsin and Minnesota, to name a few, the planning effort has prompted citizen and public official alike to give more attention to environmental education, and each of these states seems confident that the movement will continue to gain momentum.

Changes in public awareness, knowledge, attitudes and behavior: This obviously would be an excellent way to measure the extent of success or failure of a planning effort and the specific programs generated by it. However, it does not appear that any state has conducted a statewide assessment to gather the baseline data necessary to determine, at sometime in the future, whether or not any changes occurred -- including even any major geographic areas within a state or such population sub-groups as the full range of school children. Nor do we know of any state where it is the intention to undertake the gathering of such baseline information.

In states like New Jersey and Alabama where one can see a great deal of input and programmatic effort under way, one can perhaps conclude that changes are occurring, at least in awareness; however, it is and always will be difficult to get exact measures of cause and effect with respect to education and the environment.

Changes in roles and responsibilities of individuals, organizations and agencies: It is clear that in most states at least a few individuals have had their roles changed in such a way as to enable them to carry out some aspect of environmental education as a regular function of their jobs. It seems likely that these role changes will be more or less permanent. They have occurred principally at two levels. The first is at the operational level where summer camp personnel, individual school teachers, school district science coordinators, and others at the grass-roots level, have decided they are in the position to do something about environmental education and have assumed individual responsibility. In most instances, however, these activities have not been directly related to any formal plan.

The second is at the level of the Federal Government, especially natural resource agencies (e.g., Bureau of Land Management, Forestry Service, Soil Conservation Service, National Park Service, Bureau of Outdoor Recreation, Sports Fisheries and Wildlife, Bureau of Reclamation) where one finds agency personnel doing more and more to support environmental education. However, except where individuals have been assigned to assist in the state planning efforts, most of the work has been done as a result of their own agency's policies in this regard and very seldom has the effort been tied specifically to state plan implementation.

What seems to be missing are changes in the roles and responsibilities of presently employed state and local government people. As a primary example, those in the state department of education who are responsible for environmental education too often continue to exercise this responsibility in the same old ways. Specifically, this means that while there may be an increase in time and associated resources, there hasn't been a change from the role of single consultant to the new role of facilitating and catalyzing the efforts of others.

Generating and applying new money and other forms of resources: Only a few states can claim actual increases in money or after-planning programs and activities. Most states are languishing somewhere between planning and implementation because of lack of resources. In some cases the federal money granted for specific pilot programs may have also served to support programming recommended by state plans, but the prospects for state and local support through cash grants appear unlikely.

The number of non-monetary resources available to those in environmental education seems much more abundant than prior to the start of the planning efforts, especially in those states where more occurred than just writing a document, but the problem now in most states is that with the demise of the planning effort the communication system linking resources with needs has broken down.

Organizational structure: While most states utilized some form of organizational structure to carry out the planning activities, the viability of many of those that have continued beyond the planning stage is certainly questionable. In states like Hawaii, Wisconsin and New Jersey, where specific environmental education funds were made available, planning related groups still function to administer the funds. In some cases, as in Colorado, the group continues to exist but its viability is questionable until it raises enough money to put itself into business. In certain other states, such as Michigan and Alabama, the planning groups were set up as full governmental or quasi-governmental organizations and therefore continue to exist, but they will need an infusion of cash and clout if they are to be more than an organization in name only.

In many states the planning related budgets simply disappeared with the conclusion of the planning effort, and in most of those cases no new organizational structures have emerged.

Communication and coordination: These two functions seem to have been carried out reasonably well during the time when the plan was being developed, especially where some kind of participative process was being employed. In those states like Alabama, Hawaii, Minnesota, North Carolina, New Jersey and Wisconsin, where the original planning organizational structures have continued, communication and coordination continues. In other states, like California, Colorado, Michigan, New York and Texas, the communication and coordination networks have been assumed, at least in part, by organizations or agencies such as state departments of education or private institutions.

In Hawaii where the whole future of environmental education was tied to the launching of a clearinghouse, communication and coordination are expected to increase as a result of their programming. This seems to be the only fully statewide effort of this kind on the way.

Political influence: While this is one of the most difficult to measure, it seems fairly certain that each state which did more than produce a document had some influence in the political arena, if only to convince a few representatives to the State Legislature, school board members, and other elected officials of the viability and need for environmental education. The most obviously measurable influence is found in those states whose Legislature appropriated funds for environmental education or where the Legislature or Governor has continued to place high emphasis upon environmental education efforts, e.g., Hawaii, Minnesota, Wisconsin, Florida. Although not tied specifically to the master plan, political influence through funding for environmental education can also be seen in California.

What conclusions can be drawn from all this?

In our view, working to solve environmental problems must become the real focus and long-range purpose of environmental education. Further, environmental education must become an integral part of a concerted, well-coordinated and well-financed effort to deal effectively with world, national and local environmental problems. To bring about more sophisticated policy decisions and improved means for implementation, a channel of communication must be opened between those responsible for education and those responsible for technical and legal solutions.

In broad terms, we have a start at the federal level with passage of the Environmental Education Act, the National Environmental Policy Act, the Clean Air and Water Quality legislation, and growing support for the Environmental Protection Agency and the President's Council on Environmental Quality. There are parallel activities in this direction at the state and to some extent the local government level. All of this is a good beginning, and care must be taken not to let it falter. However, in terms of the entire environmental issue, if we are to prevent a reenactment of the energy crisis, something must be done to pull these fragmented environmental efforts and authorities together so that they can be applied to the problem in a comprehensive and coordinated way.

A critical element, we believe, in pulling the environmental movement into harness is the planning and execution of programs that will affect the behavior of people and the various institutions of which they are a part. A major part of any social programming effort must be education.

As environmentally oriented education grows and matures, it seems reasonable to expect that the national and state organizations and governmental agencies responsible for education's content and process will begin to make decisions regarding behavior and begin promoting change in people's attitudes, values and beliefs. This should become as important and as acceptable as what we now do to teach the value and practice of American democracy. The question will be: Did we do it soon enough?

Those of us directly responsible for promoting and supporting the cause of environmental education must regard our efforts in the same way as we regard our subject -- holistically, multi-disciplinarily, and ecologically. It seems clear that while the total number of individual environmental education programs is on the increase, very little implementation is going on as a direct, measurable result of state master planning. We recognize that small, individually operated projects can be relatively successful; but given the enormity of the problem, a steady increase in the number of unconnected, inadequately funded, individual efforts, often based more on good intentions than on substance, will not meet the challenge confronting us.

One way to meet this challenge is to take full advantage of the state planning efforts already under way. This means that the launching and conducting of individual programs at the local level must continue, but they must be more closely coordinated and better designed so that they are a real working part of the entire social program to attack environmental problems. It means also that the targets for environmental education must be expanded, to include not only those in the school system but also those people outside the formal school setting. Here, the state with its range of authority, its wide geographic and demographic base,and its ability to assign resources must play the key role.

However, it seems to us that the Federal Government must continue to take the leadership in providing technical assistance as well as monetary support to the efforts of those at the state and local level to implement comprehensive, state plan based, environmental education programs. Further, federal agencies at the regional level must move into closer harmony with the states' efforts. As long as each federal agency operates within its own policy set at the national level, isolated from the policies of other agencies and with no apparent concern for local conditions, the full weight of their combined resources will never be felt. Further, many of their actions at the local level may even, in fact, be disruptive or damaging to the states' efforts.

Finally, the Federal Government must be instrumental in enlisting the aid of the private sector -- both by example and by pursuasion -- to support the comprehensive efforts at the local level.

In short, more of what this report is all about must be done -- not less, as presently seems the case.

Appendix A

USOE/EE GUIDELINES FOR STATE PLAN PROPOSALS

For fiscal year 1971-72, the Office of Environmental Education designated the state planning effort as "Special Evaluation and Dissemination Activities for State Planning Groups."*

The emphasis that the Office of Environmental Education placed on state planning is indicated below, quoted from p. 7 of their Handbook on Preparing Proposals:

> SECTION I -- STATE COMMITMENTS
>
> A variety of resources are available to assist local efforts in developing and implementing environmental education programs for students and the general public. These resources may include curriculum materials, facilities, funds, land, personnel, and information about the environment. In order to make maximum use of these resources, it is recommended that a State commitment or plan for environmental education be developed. Such a plan should not be static but should continually change in order to remain responsive to the needs of the people of the State. The plan should include a list of resources within and available to the States, an overall educational plan, utilizating both the formal and nonformal educational system and including all age levels, and a description of the needs and priorities in implementing the plan. The plan may then be used by a variety of agencies and organizations in identifying their best means of providing assistance.
>
> Although not required for funding under the Environmental Education Act during fiscal year 1971 and 1972, implementation of projects of significant impact should await the development of State plans. At the Federal level, priority will be given to special evaluation and dissemination activities which are part of a State commitment.
>
> PLANNING GROUPS
>
> The Environmental Education Act stresses the involvement of all phases of the public and private sectors in the implementation of environmental education programs. The planning group should be a task force of representatives serving statewide constituencies in elementary and secondary education, higher education, conservation,

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*Department of Health, Education and Welfare, Office of Education, Office of Priority Management, Environmental Education Act (Public Law 91-516) Handbook on Preparing Proposals, March 1971.

health and environmental protection agencies, private educational and environmental organizations, broadcasting, business, labor, and industry. The exact composition will vary from State to State but should accurately reflect the educational and environmental resources of the State.

AREA PLANNING

Some statewide planning committees may wish to undertake planning on an area basis as a pilot project before designing a program suitable for the entire State.

DETERMINATION OF ACCEPTABILITY

Determination of the acceptability of a State commitment as a basis for selecting projects for Federal funding will be made by the Office of Education.

A more specific set of details describing the purpose, eligible applicants, and special criteria for making grant awards for state planning followed, on pp. 9-10:

B. Special Evaluation and Dissemination Activities for State Planning Groups

Purpose: To assist statewide or area program development based on resources and needs within the State.

Description: Grants will be made for evaluation and dissemination activities to public and private agencies, organizations, and groups working on a statewide basis to develop a State commitment to environmental education programs. (See Section I, p. 7.)

Who May Apply: The chairman of a statewide planning group with the support of the group will name the State organization to receive and account for the funds requested.

Special Criteria: Awards will be based on evidence that:

(1) An interagency, interdisciplinary public-private task force or comparable group has been established to develop a comprehensive State program plan.

(2) The task force has the support of the major environmental and educational resources within the State.

(3) The task force has conducted formal meetings and has established general goals and rules of procedure for the group.

(4) The task force has selected its own chairman.

(5) The evaluation and dissemination activities are an integral and critical part of the continual planning process being undertaken by the task force and serve to improve the quality of the planning activities.

(6) The evaluation design takes into consideration other educational evaluation activities within the State.

(7) The dissemination program utilizes other effective ongoing environmental education dissemination activities within the State.

(8) If the statewide planning group decides to undertake area planning as a pilot project, the area planning criteria developed by the planning group should be applicable to other areas within the State.

A description of the application procedures concluded the OEE statement of state plan activity for the first funding year, the following quoted from pp. 28-30.

> APPLICATION FOR SPECIAL EVALUATION AND DISSEMINATION GRANTS (FOR STATE PLANNING GROUPS)
>
> Proposals should address all questions in the categories below and in the order indicated. Additional information may be included, if desired by the applicant, at the end of the proposal. Less than 80 percent of the cost of the special activity proposed will be covered by Federal funds.
>
> Category I - Composition of Planning Group
>
> A. List individuals in the planning group; the organizations, agencies, institutions, groups that they represent in this project; and their function in their organizations.
>
> B. Describe briefly how the planning group members and the chairman were selected, and the official status of the group and the planning effort (e.g., by whom designated).
>
> C. Indicate the number of formal meetings (full and committee) held by the group to date; and describe the goals of the group, the rationale for them, and how they were determined.
>
> D. Describe the procedures to be used by the planning group in meeting its goals (indicate also the amount of time required of individuals in the group).
>
> Category II - Description of the Activities
>
> A. Describe the evaluation and dissemination activities including:

(1) other evaluation and dissemination activities already planned or underway within the State

(2) the activities to be undertaken under the direction of the planning group

(3) the special need for these activities in continuing development of the State plan.

B. Describe the tentative scope of the statewide program to be developed by the planning group. AND, if applying for a grant to support planning for an area of the State as a pilot for State planning, describe the scope of the area plan, a rationale for conducting a pilot as well as the area selected, the criteria to be utilized in the pilot, and their applicability to other areas within the State.

C. Describe the current status of the planning effort, including:

(1) the activities, if any, which have been or are being carried out

(2) current priority planning needs

(3) a list of the groups and organizations participating in and/or cooperating fully with the planning effort.

Category III - Use of Federal Funds Requested

Describe the priority evaluation and dissemination activities for which the Federal funds are being requested (explain how the funds will be used to meet these needs if not explicit in the description of the needs to be addressed and relate them to other aspects of the State planning activity).

Category IV - Budget. See p. 31.

Category V - Description of Recipient of Funds

A. Name and address of organization to receive the grant funds.

B. Description of recipient organization (documentation of Internal Revenue Service status required if a private, nonprofit organization other than an accredited college or university).

C. Name, title, address of individual responsible for disbursement and accounting of the grant funds.

Evaluation Reports

Evaluation reports must be submitted to the Office of Education within 30 days of grant termination. The report should cover the following questions:

1. Briefly describe the approach to planning activities for State or area development.

2. How successful were the activities?

3. What problems delayed or hindered the evaluation and dissemination activities?

4. What alternate approaches could have been utilized?

5. If the planning activity should be continued, state why -- and describe how it will be conducted.

In the guidelines for fiscal year 1972-73, the state planning efforts were given a slightly different designation: "Statewide Evaluation and Dissemination."* Again there was a section explaining the emphasis placed on state plans, the following quoted from p. 12 of the 1972-73 Handbook for Preparing Proposals:

> SECTION II - TYPES OF GRANTS & CRITERIA FOR PROPOSALS
>
> TYPE B - STATEWIDE EVALUATION AND DISSEMINATION
>
> State Initiatives in Environmental Education
>
> The Environmental Education Act stresses the involvement of all phases of the public and private sectors in the implementation of environmental education programs. In order to make the most effective uses of these resources and to develop a strategy to maximize local efforts, it is recommended that a State plan or other comprehensive commitment be developed for environmental education.
>
> The plan itself should be dynamic and flexible enough to respond continuously to the needs of the people of the State. Its basic elements should include: (1) an inventory of resources within and available to the State; (2) an overall educational plan addressing all age levels and utilizing the nonformal as well as the formal educational systems; (3) and a description of the needs and priorities in implementing the plan. The plan may then be used by a variety of agencies and organizations to identify their best means for providing assistance.
>
> A State planning group should be established with representatives serving statewide constituencies in elementary and secondary as

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*Department of Health, Education and Welfare, Office of Education, Environmental Education Act (Public Law 91-516) Handbook on Preparing Proposals, Fiscal Year 1972, October 1971.

well as higher education, conservation, health and environmental protection agencies, private educational and environmental organizations as well as spokesmen for broadcasting, business, labor, industry, citizens groups, consumer organizations, and any others that may be appropriate. The exact composition of the planning group will vary from one State to another but should accurately reflect both the educational and environmental resources of the State and should also include representatives of the people for whom the education effort is intended.

Environmental Education Act funds are available to assist statewide evaluation and dissemination activities connected with State plan development. Although not required for funding under the Environmental Education Act during fiscal years 1971 and 1972, implementation of projects of significant statewide impact should await the development of State plans.

This general introduction was followed immediately by a section explaining the purpose, eligibility and funding criteria for Statewide Evaluation and Dissemination Grants.

Purpose: To assist statewide program development based on resources and needs within the State or region.

Description: Grants will be made for the purpose of evaluating environmental education resources within the State and disseminating this information (in a planning context) throughout the State. Resources include personnel, facilities (e.g., land, materials, information sources), other education programs and related activities.

Who May Apply: The chairman of the statewide planning group with the support of the group may apply in the name of the State organization that would be responsible for receiving and accounting for the funds requested. This may be the State planning group itself, if incorporated, or a nonprofit organization or agency associated with the group.

Criteria: Awards will be based on written evidence that:

1. An interagency, interdisciplinary, public-private statewide planning group has been created to develop a comprehensive State program plan.

2. The planning group has the support of the major environmental and educational resources, both formal and nonformal, within the State, including business, labor, and industry.

3. All support and cooperation by groups, organizations and individuals is documented by letter and included in the supplementary section of the proposal.

4. Provisions are made for involving the target groups for whom this educational effort is intended in the development of the State program plan.

5. The State planning group has conducted formal meetings, established general goals and rules or procedures for the group, and has elected its own chairman.

6. The evaluation and dissemination activities are an integral and critical part of a continual planning process being undertaken by the State planning group and other local planners and decision making bodies.

7. Provisions have been made to establish communication between members of State and local decision making bodies and local target groups.

8. The project design facilitates the dissemination of the planning activities to State and local planners and decision making bodies.

The following section detailing the form and substance of the content of proposals for state plans is quoted from pp. 40-42:

SECTION V - PREPARING AND SUBMITTING PROPOSALS

PROPOSAL CONTENT, TYPE B, STATEWIDE EVALUATION AND DISSEMINATION

Type B, STATEWIDE EVALUATION AND DISSEMINATION proposals should provide, in the order indicated, the information requested below.

Project Summary: Summarize the project in 200-300 words.

Description of the Planning Group:

1. List the members who comprise the planning group. For each member, indicate the organizations, agencies, institutions or groups they represent, if any, their functions in their organizations, their occupations, and their place of residence.

2. Describe briefly how the planning group members were brought together, and how the chairman was elected.

3. Summarize the work done during formal meetings (full and committee) held by the group to date including a description of the following:

   -- The roles and responsibilities of the planning group including those of decision making, advice, and support.

   -- The rationale for the roles and responsibilities assumed by the planning group, and the way in which these roles and responsibilities were determined.

4. Describe how the responsibilities of the planning group will be carried out; for instance, illustrate the relationship between the planning group and its staff.

5. List any groups, organizations, and individuals in or cooperating fully with the planning effort, but who do not sit as members of the planning group.

Statement of Purpose and Need: Explain the rationale for development of a statewide environmental education program plan, including the special environmental education needs of the State for such a plan.

Description of Project:

1. List and describe the evaluation and dissemination goals of the statewide planning effort.

2. Describe processes for:

   -- Assessment and priority ranking of statewide needs for environmental education that have already been carried out and that are to be carried out.

   -- Inventories and categorizations of statewide resources for environmental education that have already been carried out and that are to be carried out.

   -- Evaluation of methods and approaches to environmental education that have applied in the past.

   -- Evaluation of environmental education resources; methods, materials, programs, etc., used in the past and to be used in implementing a statewide environmental education program.

3. Describe the tentative scope of the statewide programs to be developed by the planning effort, including descriptions of:

   -- Possible target groups.

   -- Possible approaches to be applied to reach these target groups.

Evaluation Plan: Briefly describe plans to evaluate the overall project for reporting purposes (see section IV, "Suggestions and Definitions" and section VI, "Grant Terms and Conditions").

Identification of Sponsor and Individual Responsible for Grant Fund Awarded:

1. Description of the purposes and primary activities of the sponsoring organization (include documentation of Internal Revenue Service status).

2. Name, title, and address of individual responsible for disbursement and accounting of the Federal funds requested. Indicate affiliation if other than sponsoring organization.

Itemized Budget: See last portion of this section, "Budget for All Proposals."

The emphasis on state planning in the fiscal year 1973-74 grant application guidelines* shifted radically. The only provision for funding state planning efforts was the use of the small grants category to apply for funds to run a series of workshops to gather information which might be used in formulating a state plan (quoted from pp. 16-17).

B. MINIGRANT WORKSHOPS

Approximately $1 million will be allocated to Minigrant Workshops to assist communities in acquiring an understanding of the causes, effects, issues and options surrounding a local environmental problem. Grants of $10,000 or less will be awarded for community workshops, conferences, symposia, or seminars conducted for these purposes.

Examples of such projects might include, but would not be limited to --

workshops for community residents on the positive and negative environmental, economic, and social effects of a proposed industrial air pollution ban;

symposia on community environmental and population change, past, present, and future;

seminars on the environmental implications of alternative urban renewal plans;

conferences on the role of the community as an environmental education resource.

Any public or private nonprofit organization that has been organized and active for at least one year may apply. Preference will be given to local citizens groups and volunteer organizations working in the environmental field.

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*Department of Health, Education and Welfare, Office of Education, Draft Environmental Education Handbook, Public Law 91-516, 1973.

Appendix B

STATE PLAN SUMMARIES

We have included summaries of all State Plans that to our knowledge have been published up to the time of this writing (Fall 1973). The problem with writing a summary, of course, is that any attempt made will not capture the totality of the plan. We have tried here to note only the prominent points; and in order to structure the summary, only certain areas have been singled out for consideration. For the most part, the summaries are organized in the following way:

The introduction identifies who prepared the document and lists the table of contents.

A brief history of the planning effort is presented to show some of the differing approaches used in initiating a state planning process. The kinds of groups responsible for initiating and carrying out the planning effort varied, of course, from state to state.

A section on activities serves to illustrate the variety of strategies used in the planning and development of a state plan.

Program and organizational structure is presented to identify some of the different kinds of programming proposed and the organizational structures suggested for carrying out a state plan for environmental education.

Page 189 contains a listing of the contact person in each state from whom more detailed information or copies of State Plans may be obtained.

ALABAMA

A BLUEPRINT FOR ACTION was prepared by the Alabama Environmental Quality Association (1972). The table of contents includes: Introduction, The Alabama Quality Association, Regional Environmental Quality Councils, Environmental Questions, Regional Council Suggestions for Plan Development, and Program Development at the State Level. (37 pp. plus appendices)

The function of this report is to identify an organizational structure which will be charged with the development and ultimately the implementation of the state plan. The report recognizes that for environmental quality to be increased in Alabama a coordinated effort must be made through citizen participation and commitment. The State Plan for Environmental Education in Alabama, therefore, is to be prepared by Alabama citizens and "will be used for comprehensive, long-range planning that sets priorities for environmental improvement."

Since 1968, the Alabama Environmental Quality Council has been the coordinating agency through which "citizens, public and private organizations, state and local governments, and business and industry work together" to combat environmental problems and assist in enhancing the environmental quality of Alabama. The Council, therefore, serves as a policy-making body for the Alabama Environmental Quality Association which was incorporated to receive a grant from USOE. One of the activities of the Association is to provide technical assistance to the State and Regional Environmental Quality Councils.

Program and Organizational Structure

The Alabama Environmental Quality Council established nine Regional Councils throughout the state. "These councils, composed of volunteer community leaders, are patterned after the State Council with representatives from eleven different interest groups." The report contains roles and responsibilities of Regional Council members as well as a plan for "Action Programs."

The report identifies environmental questions which the Regional Councils should attempt to answer in developing effective programs. Answering these questions "will help form the basis for the councils' work as well as for the State Council's Environmental Master Plan."

The report also includes suggestions for Plan development to assist the Regional Councils in carrying out their work. Such suggestions include: organizational meetings, planning and time schedules, roles for regional interest group coordinators, locations and arrangements for meetings, committee assignments, and various types of committees along with the function they will perform, e.g., information, program, activities, report preparation).

During the time the Regional Councils are "carrying out their public meetings as part of the development of the Plan, the State Council and Association will be working to contribute information to the Plan. The interest coordinators and Council members will work with "Plan topics" and the Association will develop "materials related to the topics, particularly resources and ongoing activities."

Upon the collection of the information, the Association staff will prepare and disseminate a questionnaire to determine the "priorities for implementation following the completion of the Plan." Information will be solicited from all state and regional council members, all individuals participating in the public meetings, and to a "random group of citizens who did not participate."

Implementation by the State Council will follow the final preparation of the Plan, although "it should be noted that much work which would be considered as implementation is already underway."

* * *

ENVIRONMENTAL EDUCATION IN ALABAMA -- A COMPREHENSIVE APPROACH, Alabama Department of Education, Bulletin No. 17, was prepared by the Environmental Education Advisory Council (1973). Contents include: Status of Environmental Education, Goals and Objectives of Environmental Education, Environmental Education Curriculum Development, Outdoor Learning Centers: Simple and Complex, Environmental Education Centers, The Role of Higher Education in Environmental Education, Public Awareness, Resources Available. (30 pp. plus appendices)

In 1970 the State Department of Education requested that representatives from the Alabama Department of Conservation and Natural Resources, State Board of Health, State Department of Agriculture and Industries, Alabama Development Office, the American Association of University Women, and other interested individuals assist the department in revising its environmental curriculum. After the Interagency Council began its work, it seemed desirable to involve wider public participation and to rename the committee the Environmental Education Advisory Council.

Bulletin No. 17 is the result of the Council's efforts and provides a two-prong thrust for environmental education in Alabama -- combining environmental education in the schools with environmental awareness on the part of the public, which was the primary focus of "A Blueprint for Action" published earlier by the Alabama Environmental Quality Association.

ALASKA

ALASKA STATE PLAN FOR ENVIRONMENTAL EDUCATION (December 1971) is a first draft which contains: Introduction, Environmental Education: A Definition, Recommendations for Implementing a Total Environmental Education Curriculum, Proposed Responsibilities of Educational Organizations, Proposed Educational Responsibilities of Federal and State Resource Agencies, Proposed Educational Responsibilities of the Community, Organizational Structure of a Statewide Environmental Education Program, State Advisory Committee on Environmental Education, Citizen Environmental Education Task Force, Proposed Educational Facilities, and Proposed Education Personnel. (19 pp.)

This draft provides recommendations for implementing "a Total Environmental Education Curriculum which should be met by each teacher at every grade level." It identifies various educational organizations and assigns responsibilities for carrying out environmental education programs in the state. Such organizations include the State Department of Education, local school districts, colleges and universities, community colleges, and vocational training institutions.

Responsibilities of Federal and State resource agencies and proposed educational responsibilities of the community are identified. Such groups include educators, parents, civic organizations, news media, civic groups, conservation groups, labor and industry, professional organizations, municipal resource and planning commissions, and students.

An organizational structure composed of a State Advisory Committee on Environmental Education and a Citizen Environmental Education Task Force is proposed to implement a statewide environmental education program.

The draft plan also includes proposed educational facilities at the state and local levels, and proposed educational personnel in developing and implementing programs related to environmental education in Alaska.

CALIFORNIA

The California State Plan for Environmental Education is a composite of materials dating back to 1966. Several supporting documents attest to the progress made in plan development and plan implementation. Three documents are summarized here to provide a profile of the California State Plan for Environmental Education: A REPORT TO THE CALIFORNIA BOARD OF EDUCATION BY THE CONSERVATION EDUCATION ADVISORY COMMITTEE (1969), CALIFORNIA STATE PLAN FOR ENVIRONMENTAL EDUCATION (1972), and PROGRAM FOR ENVIRONMENTAL EDUCATION IN CALIFORNIA PUBLIC SCHOOLS (1973).

History of the Planning Effort

In March 1966 the Senate Fact Finding Committee on Education and Natural Resources met jointly to consider a program of conservation education for the Department of Education. The hearing established that the state-level leadership program then offered was far from adequate and that planning was needed to set up legislative and administrative guidelines essential to its improvement. A conference for this purpose was held in July 1966. Participants consisted of members and staff personnel of the two Senate committees, educators, representatives from industry, and conservationists. In May 1967, the State Board of Education activated an Advisory Committee, consisting of individuals from industry, government, education, and private conservation agencies, to study in depth the problems identified by the Committee and the Conference.

Activities

A specialist was employed in January 1968 to serve as executive secretary to the Committee and act as a conservation education consultant in the Department of Education. The Advisory Committee's report -- in effect, a state conservation-environmental education leadership plan -- was adopted by the State Board of Education in November 1969.

Entitled A REPORT TO THE CALIFORNIA STATE BOARD OF EDUCATION, its table of contents includes: Key Findings and Major Recommendations, Basic Philosophy and Definition of Terms, The School Program, Training of Teachers in Conservation, The Role of the Community in Conservation Education, Conservation Education Materials, and The Role of the Department of Education in Conservation Education. (40 pp. plus an appendix)

Program and Organizational Structure

The Advisory Committee recommendations included:

- A permanent Citizens' Advisory Committee to advise and assist the Department of Education in implementing the recommendations contained in the report and to advise and assist the Department of Education and other agencies in matters relating to conservation education.

- Development of a K-12 interdisciplinary curricular outline by the Department of Education for use in all public schools.
- A permanent Conservation Education Service in the Department of Education to provide statewide leadership in this area with adequate funding and support from the Legislature.
- That the California Resource Agency be considered an essential part of the statewide environmental education effort and work closely with the Department of Education in developing and implementing programs.
- That special state-level program funding be provided for local education agencies to assist them in developing curricular materials, conducting teacher training activities, developing outdoor education facilities, and performing other essential environmental education services.

In addition, the Advisory Committee --

-- Defined conservation as "the rational use of the physical environment to promote the highest quality of living" and set as the primary goal of the conservation education program "helping each student develop a healthy attitude of personal responsibility toward his environment and its resources and providing him with the skills, attitudes, and knowledge needed to contribute validly to the decision-making process on issues involving the environment and its resources.

-- Stressed the importance of citizen involvement in the conservation effort and charged the Department of Education with responsibility for developing programs to encourage and facilitate such cooperation.

-- Stressed the necessity for adequate coverage of conservation and environmental protection concepts, when appropriate, in all state textbooks and other materials used by schools.

Implementation

CALIFORNIA STATE PLAN FOR ENVIRONMENTAL EDUCATION (May 1972), prepared by the State Department of Education, is a report of the progress made in implementing the recommendations of the Advisory Committee.

Since 1968 various types of legislation have been introduced which have been effective in producing additions and revisions to the Education Code of California. These include:

- A requirement for instruction in wise use of natural resources and protection of the environment in all appropriate grade levels and subject areas.

- Recognition of the need for a coordinated statewide conservation-environmental education effort, pledging state government support for such a program.

- Establishment of a Conservation Education Service in the Department of Education to develop and maintain a statewide leadership program in this area.

- The authorization of the State Superintendent of Public Instruction, on the recommendation of the Conservation Education Advisory Committee, to make grants to various organizations for planning and implementing conservation education programs. (According to Education Code Section 568.9, funds are to be supplied from the sale of personalized license plates.)

- All State-adopted textbooks must "emphasize wise resource use and environmental protection when appropriate."

Some of the other areas where notable progress has been made are in the establishment of various groups to develop and implement a variety of services and programs related to environmental education.

- A 12-member Citizens' Advisory Committee on Conservation Education, represented by business and industry, education, federal resource management agencies and others, meets on a regular basis with the Department of Education "to advise the Superintendent and the Board on the conduct of the statewide program and other conservation education matters."

- A Resources Agency Conservation Education Committee has been set up to coordinate conservation education programs and activities between the Department of Resources and Department of Public Instruction.

- The Conservation Education Service has been established as a regular function of the Department of Education.

- A State and Federal Information and Education Officers' Council has been set up to facilitate program coordination and cooperation in environmental education activities between federal and state resources management agencies. The Department of Education serves as a member of this Council.

- The Western Regional Environmental Education Council was organized to facilitate cooperation between departments of education and resources management agencies in the 13 western states. An ESEA Title V, Section 505, grant program is conducted by the California Department of Education to facilitate the work of the regional council.

Up-dated information (September 1973) indicates these further developments:

- Nearly $500,000 has been awarded to school districts, county offices, and citizen groups to date under the grant program authorized by the Legislature in 1970 and funded through the sale of personalized license plates.

- A publication entitled "Ekistics, A Guide for the Development of an Interdisciplinary Environmental Curriculum" developed by a study team headed by Dr. Paul Brandwein has been published by the Department of Education. It outlines a community centered K-12 interdisciplinary environmental education program.

- The Department of Education has designated environmental education a departmental priority and will request $750,000 in state general funds and personalized license plate funds to conduct an expanded program during fiscal 1974-75. The program will include developing a plan for non-formal environmental education, teacher training, a summer environmental intern program, land purchase and site improvements, and curriculum materials development.

PROGRAM FOR ENVIRONMENTAL EDUCATION IN CALIFORNIA PUBLIC SCHOOLS, prepared by the Office of Program Planning and Development, State Department of Education (September 1973), presents a "workplan" which will guide their efforts in furthering the objectives of the State Plan for environmental education.

COLORADO

COLORADO ENVIRONMENTAL EDUCATION MASTER PLAN, prepared by the Master Advisory Planning Council in coordination with the Center for Research and Education (June 1973), includes: Introduction, Proposed Constitution and By-Laws for the Colorado Environmental Education Council, Plans for an Environmental Education Resource Information Clearinghouse, Plans for Teacher Preparation in Environmental Education, and Plans for Media Involvement in Environmental Education. (50 pp.)

It should be noted that this document is a supplement to the COLORADO INTERIM MASTER PLAN FOR ENVIRONMENTAL EDUCATION (April 1972) prepared under the same auspices. The two reports together constitute the complete Colorado Master Plan.

History of the Planning Effort

Staff of the Center for Research and Education (CRE) and the Colorado Department of Education (CDE) began formulating the planning effort in the summer of 1970. CDE has had a Conservation/Outdoor Education Consultant on its staff for over 10 years, and in late 1970 received a grant under the Education Professions Development Act with which it contracted for services from CRE to jointly conduct a "teach-in" to help introduce an environmental education curriculum into the schools. This led to the CDE-CRE planning partnership for statewide involvement in a master plan for environmental education. They were later joined by the Rocky Mountain Center on the Environment, and together they organized a broad-based citizen group known as the Master Advisory Planning Council (MAPC).

A grant was received from USOE in 1971 to develop a state plan for Colorado. The Center for Research and Education, "acting for the Master Advisory Planning Council . . . . was recipient of the grant monies and, with substantial assistance from the Colorado Department of Education, carried out the staff work of the planning process."

Activities

The activities of the Master Advisory Planning Council included establishing needs, identifying goals, and formulating a process which would result in an environmental education plan. More than 750 concerned Colorado citizens have been actively involved. They are representative of a "broad cross section of interests, backgrounds, ages and geographic locations."

To receive the greatest amount of citizen input, meetings were held with the ten interest committees MAPC established in the Denver metropolitan area (business/industry, labor, education, environment, minority, student/youth, media, professional, government, community service/urban) and twelve regional groups organized with the assistance of the U. S. Soil Conservation Service utilizing the twelve Resource and Conservation Development Districts throughout the state.

These Interest Committees and Regional Groups were two major components of MAPC, headed by a Steering Committee composed of the chairman of each interest group and one representative each from the Soil Conservation Service and the Boards of Cooperative Educational Services. These two members acted as spokesmen for the regional participants.

Once the full round of meetings was concluded, a questionnaire was sent to all those participating in the interest committees and regional workshops to assess on one instrument priorities and needs and to give quantitative guidance and direction for the state plan. Data was collected, evaluations made, and recommendations proposed which led to the publication of the Colorado Interim Master Plan document at the end of the first grant year.

Based on the goals and recommendations established during the first phase of the planning process, four citizen-based action plans were formulated during the second phase of the project. Efforts to "stimulate and strengthen environmental education planning throughout Colorado" was another area where a great deal of effort was expended during the second year. To increase "communications, cooperation, and coordination, a resource bank was designed to facilitate the collection and dissemination of data on human, material, and informational EE resources throughout the State."

Proposed Program and Organizational Structure

The proposed Master Plan revolves around four citizen-based projects:

The first area for concerted effort is the establishment of the Colorado Environmental Education Council. This Council, a citizen-based association, would be charged with continuing the statewide coordination of environmental education. A draft of a proposed constitution for the Council is provided in the Plan, including the purpose, objectives, activities, and the organizational structure and procedures to follow in discharging its duties.

Highlighting some of these provisions, it is noted that membership in the Council is open to all citizens with an interest in environmental education. Funding for the Council itself will be obtained from annual membership dues. "Members of the Council may form local Chapters for the purpose of planning and conducting local activities." Each local Chapter will be autonomous to develop and adopt its own By-Laws "consistent with this constitution," plan and conduct its own activities, raise and dispense its own funds, etc. To coordinate these activities, a Steering Committee is to be set up. Composed of the elected officers of the Council plus seven members elected at large, it will be given the authority to establish working committees, conduct meetings, and in general be responsible for the overall coordination of the environmental education program for the Council.

The second project is the establishment of an Environmental Education Resource Information Clearinghouse. The report identifies the problems in promoting environmental education which face such groups as environmental educators, resource groups, legislators, the general public and national clearinghouses, and presents a synopsis of the needs within the state as identified in the Interim Master Plan. To resolve the problems and make provisions for fulfilling these needs, a "central source(s) for the collection and dissemination of environmental materials and other supportive services" is proposed. The role of the Clearinghouse can be described by the subprograms which it will be charged with. These subprograms, or "component groups," include outreach, information retrieval/dissemination, coordination, and technical assistance.

In order to help clarify these subprograms, the report identifies the goals, objectives, activities and outcomes of the four components.

- Outreach is the attempt to make both the public and resource groups "aware of the potential that environmental education has for training people ultimately to make decisions and act on the broad range of problems that affect their lives."
- The information retrieval/dissemination component would provide access "to a broad range of resource information on the environment and environmental education."
- Coordination deals with the system of communications and referral which is "needed between citizens who seek information and resources and agencies who have such services to offer the public."
- A technical assistance resource pool would provide guidance in such things as needs assessment, goal setting, evaluation, etc.

In order to achieve broad statewide coverage, a network of clearinghouses is proposed. Two levels of operation are identified: "at the regional level through several branch clearinghouses, and at the state level through a central clearinghouse." Each branch clearinghouse will have a staff and be governed and directed by a Planning and Advisory Board. The State Clearinghouse will function in a similar manner while acting as the central source and liaison between the Colorado Environmental Education Council and the branch clearinghouse.

The third project is that of Teacher Preparation for Environmental Education. Problems and needs are identified and recommendations made. One of the recommendations is the forming of "an Environmental Education Association to serve as a statewide focal point and advocate for environmental education in Colorado, both at the formal and non-formal educational levels." Among other recommendations are the promoting and supporting of teacher preparation "within the education system" and providing "community support" for environmental education in the schools and for teacher preparation activities. The plan includes suggestions for accomplishing each of the recommendations.

The fourth project is Media Involvement in Environmental Education. The plan identifies the current situation, constraints, goals, recommendations, and activities. Among the recommendations are the establishment of a Colorado Environmental News Service, to make environmental information regularly available to the state's weekly newspapers as well as the dailies, and the establishment of a forum of media and community representatives to periodically discuss such things as environmental education films and publications, how to make optimum use of public affairs programming and public service announcements, possible roles and responsibilities of media in environmental education, etc.

CONNECTICUT

COORDINATED ACTION PLAN FOR ENVIRONMENTAL EDUCATION, prepared by the Connecticut State Council on Environmental Education (March 1973), contains an Introduction, Operational Plan, and Organization Plan. (7 pp.)

This document does not describe the history of the planning effort except to say: "Connecticut has initiated a number of environmental education efforts directed at preparing its population for the task of understanding environmental issues and making responsible environmental decisions in the future. However, as the spectrum of involvement increases, the necessity of providing a Coordinated Action Plan for Environmental Education has become imperative."

The Plan is being prepared in order to facilitate action in the following operational areas:

Assessment (of environmental education currently being planned, offered or conducted throughout the state)
School Curriculum
Teacher Training
Vocational Training
General Education of the Public

Goal statements and a list of objectives are included for each of these areas.

To provide persons, resources and activities to implement an integrated operational plan as outlined above, an organizational system is proposed using the following steps:

1. Identification of the components of the planning system which most explicitly provide the necessary inputs such as authority, manpower, time, money, and influence so that the system can achieve maximum success in minimum time.

2. Systematic elaboration of strategies to be employed in achieving an adequate Plan using these criteria:

   - specification of goals and objectives (both long and short ranged, as well as cognitive and affective)
   - a listing of strategies or approaches which may be used to achieve the above objectives
   - an evaluation of the objectives on the basis of priorities through the use of the most effective strategies
   - a cost-benefit analysis to determine the financial efficiency and rationale of the chosen priorities
   - a design for the dissemination and replication of successful projected programs.

The organizational structure proposed includes a Council with representatives from the public and private sectors. Its chairman is to be elected annually, and an executive committee to study and implement the Council's recommendations is to serve on a rotating basis.

The executive committee is to have permanent representation from the following agencies: State Departments of Education, Health, and Environmental Protection, the State Legislature, the Commissions on Higher Education and the Arts, Connecticut Business and Industry Association, Connecticut Environmental Education Association, Connecticut Education Association, and the Connecticut Association for the Advancement of School Administration. This committee is to submit an annual report to the Council, outlining its activities and accomplishments. An approved version of the report is to be distributed to pertinent state offices.

DELAWARE

ENVIRONMENTAL EDUCATION IN DELAWARE was prepared by the Delaware Conservation Education Association, Inc. (1973). Its contents: Statement of the Specific Problem, Who Sponsors the Plan?, Our Philosophy, Our Goal and Our Basic Objectives, The Conceptual Scheme, The Liaison System, What is Being Done Now?, Funds are Needed to:, and Inquiries for Information. (10 pp.)

The introductory statement:

> The cooperative program outlined in this pamphlet is intended to provide people with a basic knowledge and understanding of environmental problems through a multidisciplinary program of educational experiences. To achieve this goal, the entire community must be involved in order to develop a balanced and accurate account of environmental issues. This pamphlet is an attempt to enlist all segments of the Delaware community in a cooperative educational effort for environmental awareness and responsibility.

The state plan, prepared by the Delaware Conservation Association, Inc. -- a private agency representing a variety of environmental education interests, was formulated around the basic conceptual scheme for population-environment studies prepared by the Population Curriculum Study at the University of Delaware. The work is based on the theme that MAN IS A PART OF A NATURAL SYSTEM, THE EARTH, AND IS ULTIMATELY SUBJECT TO THE LIMITS OF THE SYSTEM.

The five-year goal of the Plan is for the citizens of Delaware to develop attitudes and behavior in harmony with that theme. Their three basic objectives are:

> Teacher Education - To give teachers the knowledge, understanding, motivation, and materials needed to become highly skilled in environmental education.
>
> Curriculum Development - To provide environmental educational experiences, having multidisciplinary, problem-solving approaches.
>
> To design experiences which may be infused into existing curricula with minimal disruption and costs.
>
> Adult Education - To develop an electorate with sufficient knowledge and understanding to deal democratically with environmental issues and to bring personal life styles into harmony with natural systems.

To utilize community resources to the fullest extent, a liaison system will be established among those institutions, agencies, and industries interested in participating in the statewide environmental education effort. The agents will be graduate students at the University assigned to work with a specific segment of the community, serving in two ways:

> First, to investigate the activities and resources of the assigned organization and to translate their findings into educative experiences for school and/or general public (i.e., learning from the organizations), and
>
> second, to inform the institutions, agencies, and industries of the general plan of approach, suggesting ways in which they can develop resources to aid in the educative process (i.e., influencing the organizations to cooperate fully with the plan).

The liaison system will coordinate and disseminate to the K-12 education community, through the State Department of Public Instruction, the programs, lesson plans, and activities in cooperation with those groups. The general coordination of lesson plan production will rest with the Population Curriculum Study. The overall guidance of the system will rest with the Delaware Conservation Education Association, Inc.

This pamphlet indicates that a number of noteworthy environmental programs are functioning in the State; and in addition to the K-12 program, courses and lecture series are offered at the University of Delaware, Delaware State College, and Delaware Nature Education Center.

The Department of Public Instruction has received a grant from the Department of Health, Education & Welfare for dissemination of environmental education materials, but funds are needed to continue development work toward the achievement of their stated objectives.

FLORIDA

FLORIDA MASTER PLAN FOR ENVIRONMENTAL EDUCATION (December 1970), prepared by the Bureau of Curriculum and Instruction, contains: Foreword, The Present Status of Environmental Education, Goals of Environmental Education for Florida, General Procedures, Organizational Structure for Coordinating the Environmental Education Program, Curriculum Development, Planned Pre-Service and In-Service Teacher Training, and an identification of proposed projects for use as Florida's Pilot Study. (22 pp. plus appendices)

History of the Planning Effort

The plan does not contain an identification of the group involved in the planning process nor the particular roles which they played in developing the master plan. The plan does present, however, a description of some of the activities involved in assessing the needs for environmental education in the State.

Activities

A survey was conducted in 1970 to establish the quantity of local environmental education programs in existence in the State of Florida. The survey involved all district school superintendents, requesting that they furnish information regarding environmental education projects in their districts. Such items as project objectives, resources, programs and evaluation methods were requested.

In addition, each district superintendent was requested to supply a person who would have the responsibility of disseminating environmental education information and materials in their districts. Universities and colleges of education were requested to supply any research or courses in operation within their system.

Of the 59 out of 67 school districts reporting, five projects were identified as "being outstanding representatives of the potential scope of environmental education in Florida."

Proposed Program and Organizational Structure

The plan identifies goals which environmental education programs will address themselves to. Some of the objectives of a suggested state environmental education program are "to use agencies and the concerned private organizations to provide experience inside the classroom and at available outdoor teaching areas . . ."

In the plan, under General Procedures, three "critical elements of an environmental management program are used as guidelines" for the preparation of a state plan for environmental education in Florida. These elements include (1) the inventory of present resources, (2) preparation of wise management policies, and (3) the promotion of public cooperation. The plan suggests areas of concentration which should be focused upon as well as methods to carry out such activities.

1. Under the inventory of present resources, four areas were singled out for concentration. These included conducting survey(s) of counties to establish scope and content of existing efforts in environmental education, survey(s) of teacher training courses presently geared to environmental education, conferences for persons presently operating environmental education projects, and the publishing of a newsletter. Each area of concentration contains specific methods to be employed in carrying out activities.

2. Some of the management policies are: "Establish regional in-service teacher training programs; distribute introductory materials containing specific suggestions for teaching about the environment; prepare goals and objectives for environmental education." Methods are identified as well as proposed dates for their enactment.

3. Under the promotion of public cooperation, two areas are identified: Coordinating development of "non-credit, public service courses" and conducting "an extensive public speaking campaign." Methods are provided for these activities.

The proposed organizational structure for the environmental education program begins with the Commissioner of Education. "The Environmental Education program will be developed and administered by the Commissioner according to policies developed in conjunction with the Advisory Council for Environmental Education."

The plan states that a full-time environmental education consultant had been employed "with training and experience in education and ecology" to "actively guide the development of a concept of environmental education more comprehensive than those pursued in the past." The responsibilities which the environmental education consultant will have in developing and implementing the environmental education programs are described.

The plan suggests that an Advisory Council be established which would be limited in size but sufficiently large enough to include individuals from both the public and private sectors. Suggested responsibilities of the Council, which would aid development and implementation of the State Plan, are included.

The plan also suggests that a Technical Advisory Committee on Environmental Education, consisting of representatives from all appropriate governmental and private agencies, be established "with its primary function to advise the Commissioner of Education on the implementation of a state-wide environmental education program of action."

Various sectors in the state whose support will be utilized in providing a statewide environmental education program are identified. They include the State Department of Education, colleges and universities, local school districts, and government and private agencies. Areas are identified where a concerted effort will be made to develop programs to broaden the scope of environmental education. Recommendations regarding curriculum development and providing in-service and pre-service training in environmental education are areas which will be given priority consideration.

The plan identifies five school districts from five different regions where model projects will be tested. These regions are Southern Urban, Eastern Central Rural, West Central Urban, North East Urban, and North West Rural. The plan also notes four model projects to be used as a framework for Florida's Pilot Study. "Analysis of the behavioral impact of the materials on students in these five regions will provide heretofore unavailable information on the state-wide impact of the state plan in the area of environmental education."

* * *

This program has been elevated to the Bureau of Environmental Education, a bureau chief appointed, additional environmental education consultants employed, and environmental education declared as a priority objective of the Florida Department of Education.

In addition, the budget has been increased by a factor of five and authorization for a minigrant program legislated. The minigrants are for the development of "exemplary local programs and materials."

HAWAII

HAWAII IS UNIQUE, prepared by the Citizens' Committee for Environmental Education, is a statewide plan for environmental education (February 1973). This report includes an Introduction, History of the Citizens' Committee, Present Needs in Environmental Education, Proposed Program, Structure of the Proposed Center, Status and Funding, Duties of the Directors, Program, Personnel, and Budget. (16 pp. plus appendices)

History of the Planning Effort

The report deals basically with three issues: Presenting the concerns underlying the formation of the committee; an outline of the process and results of the interviews, workshops, and conferences which were conducted by the Committee; and present recommendations of the Committee, based upon its findings, for a statewide plan for environmental education.

Four citizens initiated the environmental education planning process in Hawaii. Starting in the spring of 1971, with the support of the Office of Environmental Quality Control, they began to plan for environmental education in the state. As a result of their first report, a task force was initiated to carry on the planning process. It was determined that this group would be citizen-oriented and independent of State government, other than receiving administrative and logistic support from the Office of Environmental Quality Control.

The task force, called the Citizens' Committee for Environmental Education, was composed of the original four members and others invited to "broaden the scope of interest and expertise." Two part-time consultants were retained to assist the task force in gathering data and in the development of an organizational scheme.

To carry out the planning function, a proposal was drafted for an assistance grant from USOE and additional money was solicited from the Hawaii State Government. The grant provided funds for staff support, workshops and data collection; the State aided by providing staff and administrative support.

Activities

With the aid of the consultants, the task force focused its attention upon gathering citizen interest and input of planning ideas. It contacted organizations and private citizens throughout the state concerned and involved in problems of the environment. After the initial contacts were made, a series of workshops was conducted to involve all interested parties and the general public -- five in the City and County of Honolulu and four on the neighbor islands. With the input from the workshops, the committee was able to assemble, analyze, and discuss the various kinds of information gathered from their investigations.

In September of 1972, a statewide conference was conducted with representatives from government, education, and private agencies. Its purpose was to determine the "nature and extent of existing programs, the major identifiable needs existing in the State of Hawaii in the area of environmental education, the hierarchy and seriousness of these needs, and suggestions as to the directions which a statewide plan should take."

Proposed Program and Organizational Structure

One of the recommendations was to establish in the State of Hawaii an environmental education service center to deal with the needs identified in the state inventory. This center will be concerned with the "initiation and stimulation of educational processes which deal with man's relationship with his natural and man-made surroundings." The programs will deal with both formal and nonformal education. The function of the center will be that of serving as a "catalyst, a facilitator, a coordinator, a stimulator, and identifier of needs." It is intended to assist and stimulate existing agencies to carry out work in environmental education rather than carry out "routine teaching functions or research projects" on its own.

The proposed center will have a small working staff and be governed by a Board of Directors consisting of 15 citizens, with "four members to be appointed by the Governor to represent State agencies concerned with environmental education, five members to be elected by prominent environmental organizations within the State, and six others to be selected by the Board, as constituted above, to reflect a broad coverage of community representation including business, government, professions, media, etc." The duties and responsibilities of the Board of Directors are outlined in the report.

The kinds of programming the center will concern itself with include a series of general programs, formal and nonformal education programs, and special neighbor island programs.

The plan also contains a description of the type of personnel needed to get the program underway. These include a director, an assistant for the formal educational programs, an assistant for the Neighbor Island programs, and a research associate. According to this report these are the optimum personnel needed to effectively operate the center and carry out the plan. However, "the Committee feels that this program could get started with a director, one assistant, a secretary and some support funds." The report contains an operating budget for environmental education under optimum conditions and a minimum budget.

MARYLAND

REPORT OF THE ADVISORY COMMITTEE FOR ENVIRONMENTAL EDUCATION TO THE MARYLAND STATE SUPERINTENDENT OF SCHOOLS (July 1971) contains: Maryland State Board of Education Resolution #1970-15, State Advisory Committee for Environmental Education, Background, Statements of Belief, Recommendations. (13 pp.)

This report is a result of the appointment of a committee to make recommendations for a planned program for environmental education in Maryland elementary and secondary schools (Resolution No. 1970-15, January 1970). "The Committee was asked to develop a statement of beliefs, to provide direction to the State Department of Education for overall long-range goals, and to develop specific recommendations for immediate action."

The Committee developed numerous statements of belief regarding environmental education as the basis for their recommendations. Activities of the Committee were centered upon reviewing environmental education programs in the state, utilizing outside consultant advice, working in small groups in the areas of "program definition and objectives, teacher education, research, curriculum development, student action programs, adult education programs, environmental learning centers, and implementation strategies." In addition, the Committee met with the Governor's Commission for Environmental Education on two separate occasions.

As a result of their investigations, the Committee adopted twelve recommendations. Examples, taken at random, include:

- The Maryland State Department of Education, working cooperatively with representatives of the local educational agencies, construct a curricular framework for a comprehensive State environmental education program.
- The Maryland State Board of Education recommend that every school site contain an environmental study area.
- The Maryland State Department of Education establish and provide for the operation of regional environmental education centers.
- The Maryland State Department of Education establish and support student activity programs in environmental education.

A resolution by the Maryland State Board of Education (1971) provided that the State Board of Education accept the twelve recommendations of the Advisory Committee for Environmental Education and "be it further resolved that the State Board of Education direct the State Superintendent of Schools to take those actions necessary to initiate the implementation of the Advisory Committee's recommendations."

MASSACHUSETTS

ENVIRONMENTAL EDUCATION IN MASSACHUSETTS was prepared by the Massachusetts Advisory Committee on Conservation Education's Task Force for Environmental Education (March 1973). This State Plan contains: Foreword, Preface, Comprehensive Summary of Task Force, Recommendations, Description of Assessment Study, and Analysis of Data and Recommendations. (28 pp. plus appendices)

History of the Planning Effort

As a result of an act signed by the governor in May of 1961, the position of Supervisor of Conservation Education was established within the Commonwealth's Department of Education. The Massachusetts Advisory Committee on Conservation Education was appointed by the Board of Education to "advise the Supervisor of Conservation Education and the Commissioner of Education." It has been instrumental in initiating conferences, preparing records, making recommendations, and assisting the Department of Natural Resources in site selection for a state environmental center.

In May of 1970, the Committee established a sub-committee to begin work on the Commonwealth's commitment to environmental education; and in April of 1971 set up a Task Force, "more broadly based than the Committee," to carry out the development of a state plan for environmental education. A grant for a state plan was received from USOE, and in September of 1971 the Task Force started to "work in earnest on an environmental education plan for the Commonwealth."

Activities

During the first year of operation, the Task Force was charged with three priorities. First, it was the job of the Task Force to "assess all aspects of environmental education programs currently in progress." Secondly, it was recognized that priority consideration should be given to "determine the environmental education needs within the Commonwealth and to establish priorities within those needs." Due to the fact that priorities are not static, it was believed that a third priority should be that of "an on-going state planning system."

To assist in carrying out the work of these three priority areas, as well as establishing specific recommendations for a state plan for environmental education, the Task Force divided itself into five work committees: Elementary and Secondary Education, Higher Education, Continuing Education, Federal and State Agencies, and Organizational Planning Committees. To facilitate the work of establishing priorities and needs, as well as making it possible to make specific recommendations, each committee prepared a questionnaire to be sent to individuals and organizations which fell within their sphere of influence.

The following year was to be concentrated on clarifying needs and priorities and actually setting up and funding an organizational structure to carry out the program for environmental education in the state.

Proposed Program and Organizational Structure

One of the recommendations proposed by the Task Force was that "a quasi-public organization be immediately established to catalyze and focus the private and public environmental effort in the Commonwealth." The Task Force felt that without the establishment of an organization of this nature none of the other recommendations which they proposed would be capable of being carried out. The Task Force considered various types of organizational structures and screened each according to a rigid set of criteria which is set forth in the document. As a result of this intensive investigation of alternative organizational structures, it was decided that a public trust organization would be the best approach to take.

The trust would be called Trust for Environmental Education (TRUST-EE). It would allow various groups, organizations, agencies, and individuals to open "new and productive channels of communication and cooperation;" instigate the "design and testing of new materials and approaches;" annually assess priorities for environmental education needs and "catalyze the talent and funds for developing programs to meet these needs;" aid groups and organizations in submitting proposals for funding and assist in coordinating these proposals with the "overall state and federal objectives for these areas;" explore "new technologies for improved instruction;" function as an "environmental education clearinghouse and develop and maintain a communication system able to assemble, review and disseminate ideas in the field."

The TRUST-EE would have a small core staff. "A trust, with a small catalytic staff, can be quite free to coordinate and stimulate the cooperative staffing and funding of projects from a host of public and private agencies with a minimum of bureaucratic and academic jealousies."

"The rest of the recommendations of this report comprise an initial working plan for environmental education in Massachusetts." It is noted that the recommendations are categoried but that overlaps between separate categories are present. These categories include: Elementary and Secondary Education, Higher Schooling, Public Non-School Education, Governmental Agencies, and General. The report makes a statement as to the broad objectives of each category. It identifies "general actions to achieve the objectives;" where appropriate, specific suggestions are "subsumed under the general actions." Areas which are in need of "first level" priority are identified in each category, and each category contains areas where the TRUST-EE will aid in the establishment of programs and projects.

MICHIGAN

MICHIGAN'S ENVIRONMENTAL FUTURE: A MASTER PLAN FOR ENVIRONMENTAL EDUCATION (1973), prepared by the Governor's Environmental Education Task Force, contains: Letter of Transmittal, Members of the Governor's Task Force, Task Force Staff, Task Force Consultants, Foreword, Overview, Development of the State Plan, The Setting, Statewide Goals and Priorities, Recommendations and Strategies, Distribution and Evaluation, Glossary. (92 pp.)

History of the Planning Effort

The Governor appointed a broad-based Task Force to write a comprehensive, long-range plan in response to the recommendations from various individuals from citizen and government groups in mid-1971. The Task Force felt they had two alternative choices for attacking this assignment. They could write a document by themselves and, after its completion, could sponsor hearings for public reaction. Or they could conduct a series of public meetings to gain ideas from the public before writing the first draft. The second approach was chosen because it was felt that the first draft should emerge directly from citizen concerns.

The planning effort was funded by a USOE grant. Received in June of 1972, the grant allowed for the hiring of a staff to aid the Task Force in developing and writing a comprehensive, long-range plan for environmental education in Michigan.

Activities

Before receiving the grant, the Task Force embarked upon a process of assessing the State's current efforts in environmental education and outlined a tentative list of environmental education goals. The process involved mailing the tentative list and a questionnaire dealing with the assessment of current programs and needs to 600 citizens and organizations across the state. The results obtained from the questionnaire enabled the Task Force to compile a more comprehensive list of environmental education goals.

In June of 1972, four regional meetings were conducted. These were all-day meetings which had been highly publicized and open to the general public. The purpose was to give the participants an opportunity, through small group discussions, to review the tentative environmental education goals, identify needs, and seek possible directions for a statewide plan for environmental education. Rather than being held simultaneously, these meetings were scheduled so that summary recommendations from one meeting were available to the next. This allowed for a broadening and strengthening of the matters dealt with at each meeting. During this time, additional input was received by mail and systematic research was conducted.

The material was drawn together into a first draft and mailed to all participants for review and comment. A statewide conference was then held in July 1972 with the previous participants and other interested individuals.

With the additional material received from the state conference, the Task Force wrote and rewrote many drafts to attempt to make the Plan fit the needs of the state precisely. After conducting special meetings to refine various sections of the Plan, a final draft was submitted for public reaction. In addition, over 150 professional consultants and reviewers representing many aspects of education and planning were sent copies and asked to comment on the final draft.

Proposed Program and Organizational Structure

The plan identifies six major characteristics:

1. The Plan looks at all groups and attempts to coordinate their environmental education and information programs. These groups include: agriculture, business and industry, citizen organizations, elementary and secondary schools, government, higher education, individual citizens, labor, mass communications, professional and trade associations, religious organizations, and youth organizations.
2. The Plan is long-range.
3. The Plan has a "grass roots" foundation. Ideas and recommendations solicited from the general public form the plan's foundation.
4. The Plan has a built-in flexibility and sensitivity to changing needs. It calls for a continuing evaluation of the plan's development and implementation and a revision of the entire plan every five years.
5. The Plan suggests priorities for distributing scarce environmental education funds. While no program possibility will be excluded, priorities for consideration will be given to people who currently are the least organized to solve environmental problems and who suffer the most from environmental problems.
6. The Plan recommends that the Governor establish in his office a State Environmental Education Council and a Citizens Advisory Board to centralize and coordinate all statewide environmental communication, education, and information programs.

In summary, this document spells out the underlying values upon which the planning activities were based and signals current problems and efforts (Chapter III). It also tells how the Plan was developed

(Chapter II) and details goals and priorities (Chapter IV). For each major component into which Michigan was divided, recommendations are listed, constraints identified, and strategies suggested (Chapter V). Guidelines on how to distribute and evaluate the plan are provided (Chapter VI). A complete glossary, which defines general terms, is presented at the end of the report.

A total of 102 specific recommendations are listed. Of these recommendations, the State has the authority to implement only a few. Most recommendations are intended to be implemented voluntarily and cooperatively by private and public groups, organizations, or individuals.

One of the recommendations is the establishment by July 1973 of a seven-member Environmental Education Council. These members would be appointed by the Governor upon the advice and consent of the State Senate. The Plan identifies the qualifications, terms of office, and specific roles which the members will perform in the overall environmental education effort.

A Citizens Advisory Board on Environmental Education is also suggested, to be established concurrently with the Council. Board members would be representative of the twelve component groups. The role of the Board would primarily be to provide advice to the State Council.

Another recommendation is that the Governor establish before July 1974 state environmental education regions. The Plan identifies the purpose of such regions as well as the accountability of these regions in the state environmental education plan.

All these recommendations, of course, have constraints; the constraints, as well as the strategies to be employed, are contained in the document.

MINNESOTA

ENVIRONMENTAL EDUCATION IN MINNESOTA, a state plan for environmental education, was prepared by the Minnesota Environmental Education Council (first edition, 1972). The plan contains seven sections: Introduction, Organizational Recommendations, Introduction to Education Methods and Procedures, Introduction to Communications, and State Level Administrative Recommendations. (56 pp. plus appendices)

History of the Planning Effort

As a result of a bill introduced in the legislature in 1969, environmental conservation education began to be developed and implemented throughout K-12 public school systems in Minnesota. The responsibility for this comprehensive program was given to the Departments of Education and Natural Resources. Developing pilot projects and delegating various duties to consultants, a task force, etc., these Departments launched a program to meet the needs for environmental conservation education in the state's elementary and secondary schools.

A committee, formed by the commissioners of these two Departments, prepared a preliminary master plan outlining a statewide environmental education program. Due to the efforts of this committee, the governor and legislature appointed an 18-member ad hoc committee to continue the planning and submit a grant proposal to USOE. In June of 1971, the ad hoc committee was notified that it had been awarded a Special Evaluation and Dissemination Grant for the period of July 1971 to June 1972.

Based upon the recommendations of the ad hoc committee, an Environmental Education Council was formed in August of 1971. Consisting of 30 members, the Council employed an executive secretary, adopted by-laws and defined general objectives.

Activities

During its first year of operation, the Council devoted its time to studying environmental education programs and needs in the state. This study resulted in recommendations that more "comprehensive environmental education programs" be initiated and that an organizational structure be provided to administer such programs.

Some of the activities of the Council included: Conducting a status and needs survey of public school districts, voluntary organizations concerned with the environment and/or education, and municipal government units in communities of more than 2500 population; conducting six fact-finding meetings in key regions throughout the state to determine existing programs and needs from persons representing schools, businesses and organizations in those areas; conducting a symposium for representatives of post-high school institutions in the state; gathering information from the various grant proposals to USOE submitted by schools, communities and organizations throughout Minnesota; and drawing upon the background and experience of Council members.

Proposed Program and Organizational Structure

Recommendations regarding the organizational structure included the establishment of eight Regional Environmental Education Commissions (REEC). Each REEC will consist of 12 members "serving without compensation and appointed by the Governor. Members must reside in the region and shall reflect the general population makeup of the region." In the document, a list of groups representing various interests and organizations are identified. Qualifications and terms of appointment are also included.

The role of the regional commission is to implement provisions of the state plan, following guidelines set forth by the Minnesota Environmental Education Council. Each REEC is authorized to employ a full-time coordinator and half-time secretary, and each will have flexibility in establishing priorities for implementation of programs in their respective regions.

Two members of each REEC shall be elected by each of the eight REEC's to serve on the Minnesota Environmental Education Council. Fourteen members shall be appointed by the Governor. "At least one appointee shall represent each of the following State departments and agencies: Education, Natural Resources, Pollution Control Agency, Higher Education Coordinating Commission, and the State Planning Agency." The terms of appointment are provided in the document. The plan also provides for accountability.

Recommendations for implementing environmental education programs through both formal and nonformal educational processes are included in the document.

The plan provides educational methods and procedures for dealing with formal education -- kindergarten through twelfth grade, program plans for non-disciplinary curriculum, and with in-service and pre-service teacher training. The plan further discusses post-high school methods and procedures for providing greater environmental literacy.

The plan also includes educational methods and procedures for nonformal education. It identifies a variety of sectors in the society and the roles they will be expected to play in increasing environmental awareness and promoting environmental education in Minnesota. These sectors include pre-kindergarten, voluntary organizations, the church, business-industry-labor, and government units.

The document states that "effective communication holds the key to the success of both formal and nonformal environmental efforts." The plan stresses that media is only one source of communication. "All segments of formal and nonformal education efforts can employ individual techniques of communication." Suggestions are made for providing that communication.

Recommendations are made as to what the state level administrative efforts could do to promote environmental education programs designed to resolve those problems can best be accomplished on the local level, departments and agencies of the State and Federal governments have a unique opportunity and responsibility to provide leadership to the comprehensive environmental education effort envisioned by this State Plan."

Provisions are made for a "Preliminary Annual Operating Budget." It includes a budget proposal for the Minnesota Environmental Education Council and the Regional Environmental Education Commissions.

* * *

On May 18, 1973, the Minnesota State Legislature enacted Chapter 558 permanently establishing the state Environmental Education Council and a system of Regional Environmental Education Councils. In so doing, the organizational structure recommended in the State Plan was modified slightly. Instead of the eight regional councils originally suggested, the REECs will now coincide with the state's regional development commissions, which currently number 13. This necessitates changing the state council membership to include one representative of each REEC and 13 at-large members appointed by the Governor. In terms of appropriations, the Legislature granted only about one-fifth of the Council's request for the coming biennium, making necessary considerable changes in staffing plans.

NEW JERSEY

MASTER PLAN FOR ENVIRONMENTAL EDUCATION: A PROPOSAL FOR NEW JERSEY, prepared by the New Jersey State Council for Environmental Education (1970), was the first comprehensive state plan in the nation. With its acceptance by the U. S. Office of Education three years ago -- under an implementation grant from Title III-306, U. S. Commissioner of Education's discretionary funds -- it became the model for USOE's emphasis that all environmental education proposals for funding be related to a developed or emerging State Master Plan. Contemporaneous with implementation funding, USOE circulated the N. J. Plan to all other state education departments as a guide for similar planning in each state.

Therefore, this summary of the N. J. Plan will not only be a synopsis of the Plan as written in 1970 but also a description of the implementation activities that have taken place during the intervening years.

The table of contents includes: The New Jersey State Council for Environmental Education, the Environmental Imperative, What is Environmental Education?, Department of Education, Elementary and Secondary Education, Adult Education Courses, Education of the General Public, Local Concerned Citizens Committee, Higher Education, Resources and Facilities for Environmental Education. (23 pp. plus appendices)

Produced after three years of study under a State Title III Grant, the Plan was approved and funded for implementation by USOE. Since its first budget period beginning July 1, 1971, USOE has awarded more than $1,200,000 to the New Jersey State Council for Environmental Education to carry out the Plan.

History of the Planning Effort

The State Council for Environmental Education was established in 1967. Between 1967 and 1971 it was funded by the State Department of Education, under Title III of the Elementary and Secondary Education Act of 1965, with funds administered by the Newark Board of Education as Local Education Agency (LEA). During this period, the Council conducted a statewide assessment of environmental education which led to the policy recommendation embodied in the Master Plan.

In developing the Plan, representatives from various state agencies and other organizations constituted the Board of Directors. After approval of funding in 1971, the Council moved from an advisory and planning footing to become the action agency responsible for the Plan's implementation. From an initial staff of five (three professional and two secretarial), the Council now supports more than twenty full-time staff, operating from four centers in the state, with funds from both state and federal sources.

Activities

The Council was formed in 1967 to achieve six primary objectives related to environmental education in the state of New Jersey. These include:

1. Develop an evaluation instrument for Environmental Education programs.
2. Inventory all Environmental and Outdoor Education programs and sites in New Jersey.
3. Assess existing Title III projects in Environmental and Outdoor Education.
4. Determine whether inner city youth are being served.
5. Increase public awareness of the value of Environmental Education.
6. Develop a Master Plan for Environmental Education in New Jersey.

By 1970, each of these objectives had been accomplished.

Proposed Program and Organizational Structure

As a result of its evaluation and planning work, the Council proposed that a Department of Education Technical Advisory Committee (TAC) on Environmental Education be established to advise the Commissioner of Education on the implementation of a statewide environmental education program of action. In the fall of 1971, the TAC was formed and the Commissioner charged the Committee with counseling him on long range implications for environmental education in the state and with assisting the Council in the project it was carrying out.

In accordance with the Master Plan, the Committee consists of twenty members, representing a variety of interests from education, business and industry, professional associations and the Governor's Cabinet, appointed for three-year terms. The Committee now functions under the Master Plan mandate that it "serve the Commissioner of Education by gathering vital information, reviewing Education Department efforts related to environmental education, and recommending a course of action based on the master plan and other data resulting from its deliberations." To achieve more particular focus, the TAC has been organized into the following standing committees, coordinated by an Executive Committee: Issues Committee, Environmental Education Legislation and Grants Committee, Curriculum Committee, and Citizen's Group Committee.

Besides the establishment of the Technical Advisory Committee, the Council has undertaken programs for the five major consumer audiences identified in the Master Plan as targets of the state environmental education effort: elementary and secondary education, adult education, education of the general public, concerned citizens committees, and higher education.

The Master Plan recommends that the Commissioner of Education urge all school districts to establish a Concerned Citizen's Committee on Environmental Education. "This committee would serve as liaison between environmental related organizations . . . as well as local established governmental agencies and the local schools." The citizen's committees are designed to assist the school district in the study of local problems and in the development of pertinent curriculum materials on those problems. To date the Council has pursued this Master Plan objective through the activities of three Regional Coordinators, assisted by citizen group consultants in each region. Besides establishing wholly new groups for this purpose, the Council has worked in cooperation with a proliferating network of Environmental Commissions. Established by legal mandate as complements to Municipal Planning Commissions, there are Commissions active in 240 of New Jersey's 547 municipalities. The primary function of these Commissions is to conduct local resource inventories, securing the kind of environmental data which penetrates to the nature of local and county problems.

Another area discussed is the resources and facilities for environmental education in New Jersey. The Council identified a variety of existing programs and facilities designed to enhance youth and adult, pre-service and in-service teacher education awareness and involvement about the environment, and supplementary centers designed to act as clearinghouses and dissemination units to assist educators and others.

The Master Plan recognizes, however, that to increase service to youth and adults, increase teacher training capability, extend the dissemination of environmental education materials, and to form an effective network for programs and curriculum development, the network of Environmental Education Centers must be strengthened. Since 1971, the Council has been able to contribute some support to three such Centers in the south, central and northern regions of the state toward the goal of training 12,000 teachers.

During 1970 the Council was instrumental in drafting Assembly Bill [illegible]2 which was signed into law by Governor William Cahill on August 4, 1971 as Chapter 279, New Jersey laws of 1971, the first state Environmental Education Act in the United States. With passage, the Legislature attached a fiscal note of $100,000 as a complement to Federal funds to carry out the purposes of the Act. The Act, representing the successful collaboration of the State Department, the State Council for Environmental Education, and legislative sponsors, completed the basic framework of the Master Plan. It also provided the basis for continuity in carrying out the Master Plan after the Council's developmental work is completed.

The Act authorized the Commissioner of Education, in collaboration with the Commissioner of Environmental Protection, to promote environmental education in schools throughout the state, to cooperate with the N. J. Public Broadcasting Authority in development and dissemination of programs in environmental education, and to provide cost-sharing grants to schools for a variety of purposes. The Act also designated three regional Environmental Education Centers as Research and Development Centers to provide services to local school districts.

Carried into succeeding years as 18A:6-80 School Laws of New Jersey, the Act has enabled the Commissioner to include funds for environmental education as a line item in his annual budget; and since 1971 the Council has been designated as Administrator of these funds to supplement the Master Plan.

By June 1974, the Council will have completed its third implementation year. During this period, the Council has developed programs for each of the five audiences targeted by the Master Plan and has forged a comprehensive intra-state cooperative network among the primary participants at each stage. Among the notable outcomes of this Project have been the development of Computer Based Resource Units (CBRU's) in twelve environmental problem areas, covering the K-12 span, a teacher training program reaching at least one teacher in each school building in the state, an installation system providing for rapid delivery to teachers across the state, and user feedback on units, a growing higher education consortium of colleges providing in-service and pre-service programs through localized models and public television, a large-scale citizen network and broad programs in public and adult education.

Included in the project, and in the field testing, have been teachers, administrators, students (from urban, suburban and rural Curriculum Development Teams), the public-at-large (through television), the State Department of Education, Public Television and cable TV outlets, colleges, high schools and County Superintendent's Offices, other projects oriented toward CBRU services in the state, R & D Centers and a network of Educational Improvement Centers, the NJEA (state teachers association) and the School Boards Association.

In its outreach programs, the Council has worked through the TAC with business and industry in establishing an environmental education sub-committee on the State Chamber of Commerce. During 1972-73, in cooperation with Title III and the Office of Environmental Education at USOE, the Council contracted the development of a Study Guide in Options on population growth, examining the implications of the findings of the President's Commission on Population Growth and the American Future.

In following this educational thrust, the Council has pursued the three-pronged Master Plan goal set forth in the original proposal for funds:

> The major goal of this proposed project is to provide an organizational structure and means for industry, education, government and other groups and individuals to work cooperatively, pooling their resources in order to create an Environmentally Literate Citizenry which understands its interdependence with environmental problems and is activated to participate in the solution of these problems.

NEW YORK

THIRD REPORT TO THE GOVERNOR AND LEGISLATURE ON CONSERVATION EDUCATION, prepared by the Temporary State Commission on Youth Education in Conservation (April 1973), is the State Plan for New York. It includes: Letter of Transmittal, Philosophical Rationale, History, Summary of Commission Activities Under Present Staff, Highlights of Regional Meetings, Findings, Plan for Regional Environmental Education Development, Needs, Recommendations, and Summary Recommendations. (73 pp. plus appendices)

History of the Planning Effort

In 1969 the New York State Legislature passed a bill to establish a temporary commission to investigate how conservation education was being taught in the public school system and to make recommendations on improving or extending such education.

Called the Temporary State Commission on Youth Education in Conservation, it consisted of environmental education specialists and concerned citizens. Three members were appointed by the Governor, three by the Speaker of the Assembly, and three by the President pro tem of the Senate. In addition, the commissioners of the State Departments of Education and Environmental Conservation were appointed to serve on this commission.

Activities

The Commission, immediately after its creation, realized that "a broader interpretation of their mandate was demanded by a growing environmental consciousness on the part of the general public." Conservation education would involve all levels of the general citizenry in both formal and nonformal educational situations.

During January and February 1970, five public hearings were conducted throughout the state to identify worthwhile on-going projects and to determine "the need for developing or extending conservation education." Participants included high school and college students and representatives from education, conservation and citizens groups. Between March 1970 and March 1971, the Commission focused its attention upon obtaining information on environmental education programs throughout the state and nation.

In 1971, the Commission, carrying on its work as a subcommittee of the Senate Committee on Conservation and Recreation, received a grant from the federal government "to evaluate a master plan for environmental education in New York State." The dissemination of the DRAFT NEW YORK STATE ENVIRONMENTAL EDUCATION PLAN (1972) was made possible through these funds. "The draft was tested for acceptability and feasibility before any attempt was made to implement it."

Reaction from the public was solicited in March 1972 on the Niagara Frontier to "comment, criticize and suggest improvements on the Plan in order to make it responsive to the environmental needs they felt were most important." In June 1972, leaders in business, conservation and education from throughout Long Island were brought together in an attempt to achieve coordination of both formal and informal environmental education programs.

In the fall of 1972 the Commission hired a staff to evaluate findings and see if the needs of the people had changed from the initial meetings in 1970. A series of six regional forums were held in January and February of 1973, to assess local needs and identify local resources in order to be in a better position to make recommendations to meet local needs in environmental education.

Proposed Program and Organizational Structure

The report identifies the need for increasing environmental education in formal education by integrating "knowledge relating to the environment at all grade levels through inter- and multi-disciplinary approaches." Formal education is seen to include pre-school, K-12, higher education and adult education. The report also includes predictions for success of formal education in fostering environmental education in New York.

To promote "total community involvement," the program identifies what is termed "informal education." It was recognized in the 1972 draft plan that there were specific ways in which other groups -- business and industry, government, citizens groups, conservation organizations, labor, and the media -- could perform essential educational functions. It was also recognized, after conducting the meetings in 1972-73, that "although the sectors of the informal system differ from one another in commitment and resources, there are common activities which each can pursue, individually and collectively, to assure optimum growth of a total community involvement program."

To promote total community involvement, three primary processess "functioning concurrently and providing mutual support in pursuit of a common goal" are proposed. These include:

1. The Constituting Process -- The process which creates internal structure and organization in each sector of the informal education system to establish their individual potentials for participating in regional environmental education.

2. The Correlating Process -- The process which brings the sectors of the informal educational system together in mutual relationship to facilitate their collective interaction in regional environmental education.

3. The Coordinating Process -- The process which brings the formal and informal educational systems together in proper order and relationship to achieve total community involvement in environmental education.

The report includes a section on needs and recommendations for a plan for environmental education in New York. Some of the recommendations include:

- That a temporary Council on Education in Environmental Conservation be established within the Executive Department, to be "composed of eleven citizens, representing different regions of the state, who by training or experience have backgrounds in environmental education, conservation or related field." Four members would be appointed from the state agencies and would include the Commissioners of Education, Environmental Conservation, and Parks and Recreation, and the Chancellor of the State University. The recommendations also include a list of duties which the Council would be expected to carry out.

- That a statewide information clearinghouse should be established in the Department of Environmental Conservation. The clearinghouse would function as an entity "to increase the efficiency of information collection, storage and dissemination to the general public.

- That the position of Regional Coordinator for Environmental Education be established within the Department of Conservation.

- That regional environmental education centers be located at strategic locations throughout the state. The proposed plan includes duties and responsibilities which the Regional Coordinators and regional centers would have in carrying out environmental education in their respective regions.

- That the principles of environmental education should be incorporated into formal education wherever possible.

Summary Recommendations

1. That the Legislature and the Governor, in their wisdom, take firm and decisive action toward (a) establishing state level leadership and direction to environmental education, and (b) providing our regional communities the minimum tools essential to coordinate environmental education program development and implementation.

2. That the citizens, leaders and professionals who have worked with the Commission in 1972 and 1973 continue their efforts to involve the total community in environmental education and that citizens in the other regions attempt to enlist the full complement of regional resources in this task.

3. That all citizens, leaders and professionals having an interest in environmental education look anew at resources immediately at hand within their respective regions and try to bring them into service for program development and implementation by means of the process we have set forth under the concept of total community involvement.

NORTH CAROLINA

A PLAN FOR DEVELOPING ENVIRONMENTAL EDUCATION PROGRAMS IN NORTH CAROLINA, prepared by the Governor's Task Force on Environmental Education (August 1973) is the final draft of the State Plan for North Carolina. It includes a Preface, an Introduction, Rationale, Goals and Objectives, Current Status, Recommendations, Evaluation Mechanism, and charts which detail schedules, tasks, roles and responsibilities. (71 pp. plus appendices)

History of the Planning Effort

Two acts were formulated by the North Carolina Legislature which formalized the state's interests in the environment: the North Carolina Environmental Education Act of 1969 and the North Carolina Environmental Policy Act of 1971. An environmental planning guide was published in 1971 which presented the environmental problem areas and related functional solutions to be applied throughout the state planning process. Two of the major functional solutions proposed pertained to public awareness and the educational process.

In May 1971, the Governor established an Environmental Education Task Force charged with actualizing the suggested solutions in public awareness and education through a state plan for environmental education.

Activities

Since its inception, this broadbased Task Force has met from time to time in an effort to tie together the multitude of public programs, special interests, local and regional activities, and private practices that influence public environmental education. In June 1972, the Task Force applied for and received a grant from the U. S. Office of Education to develop an environmental education plan.

By September a staff was organized and spent several months making personal contacts with those groups and individuals in the state who could provide assistance in gathering information and in preparing the plan. Special assistance was given by a statewide committee organized as the North Carolina Environmental Information and Education Network representing the business, educational, civic, and governmental sectors of the citizenry.

With their aid, the Task Force began to formulate a plan by answering the following questions: (1) What are the environmental problems in our State? (2) What is environmental education and what role does it play in the solution of our problems? (3) What are the long-range outcomes and goals that we desire to achieve in North Carolina? (4) What are the barriers to reaching these goals? (5) What resources and activities are presently available, and what is needed in addition? (6) Who has responsibility for planning and organization in each specific sector of environmental education?

(7) How can we best plan and organize a planning and implementation process for environmental education, and then evaluate the effectiveness of that process as well as the continued relevance of our stated goals and the plans devised to reach those goals?

Proposed Program and Organizational Structure

The overriding goal of the statewide effort is "to create an environmentally literate population in our state. It is hoped that. . .(it) will result in the citizenry of North Carolina having the motivation to gain knowledge of environmental alternatives, the confidence and wisdom to make choices between them, and the skills required to turn choice into action."

In order to achieve this goal the document proposes a two- to four-year effort to develop a subordinate plan for each of seven key program areas. Each of the seven areas is explained by pointing out who is responsible for what and by when it should be done. In the majority of cases, the governor or state government agencies are responsible for appointing or establishing a specific group to undertake the work of preparing the subordinate plan. The seven program areas and the group or institution proposed to complete the planning are presented below:

Program Area	Responsible Group or Institution
Master Planning, coordination, review of subordinate plans	State EE Advisory Council
Assistance to State EE Advisory Council and review of all plans in terms of local and regional needs	Statewide Network for Environmental Education and Information
General Awareness Programs, Beautification Programs, Environmental Information Referral Service	Clearinghouse for Public Information and Agency Coordination
Curriculum development, materials review, program assistance	Clearinghouse of Public Instruction in EE; and the Special Inter-Disciplinary Unit for Environmental Programs, Grades K-12
Pre-service and in-service training programs criteria, and teacher certification	Joint Planning Body on Teacher Training
Professional and para-professional programs	Joint Planning Body on Training Environmental Scientists and Technicians
Review of sites, criteria for planning and development of EE Centers at state, local, and regional levels.	Joint Planning Body on Centers, Study Areas, and Laboratories.

In discussing the target audience for statewide environmental education, a great deal of emphasis is placed on providing environmental education for the total population of the state. The guidelines under which the Governor's Task Force on Environmental Education has operated state: "It must be aimed at the total population and must provide environmental information that can be understood by all, from small children through adults."

Another theme running throughout the document is the emphasis on the improved and expanded use of existing resources. It describes in considerable detail the resources now available to the state, and new ways to use existing resources are discussed. "There is already a great deal of money invested in facilities, equipment, and personnel for education and the dissemination of information. There are other resources which have not traditionally been conceived of as educational or informational in nature, but which have tremendous potential in those uses. The great requirement is not for the funding of expensive new resources dedicated to environmental education, although some new resources may be required. Instead we need coordinated, innovative approaches to the development and use of existing resources."

The implementation of the plan is organized in some interesting ways. The formation of a central state organization is proposed which would: (1) Set broad EE policies, (2) monitor the work done on the subordinate plans, (3) provide a framework for building interagency coordination and the production and dissemination of material, (4) provide for state/non-state liaison, and (5) reassess state needs and evaluate subordinate plans in terms of the guidelines.

A second but separate area is the allocation and evaluation of state money to environmental education programs. This latter function would be done by a separate but associated group so as to keep politics out.

Finally, there is to be a network for statewide contact which would serve as the means to decentralize, or at least localize, the work of the central state organization.

OHIO

OHIO PLAN FOR ENVIRONMENTAL EDUCATION, in draft, was prepared in cooperation with the State Advisory Committee and the Departmental Task Force (April 1972). This report contains: What is Environmental Education, Bases for Environmental Education Plan in Ohio, Major Objectives of Ohio Plan for Environmental Education, Organizational Structure to Administer the Environmental Education Plan, Cooperative Efforts from Agencies and Organizations, Phases in Development of Environmental Education in Ohio Schools, Key Facets for Development and Implementation, Efforts to Date, and Financial Requirements. (35 pp. plus appendices)

This document does not provide any history of the planning effort; it concentrates on the objectives of a state plan and a proposed organizational structure.

Proposed Program and Organizational Structure

The major objectives include the identification of needs in the educational system, the initiation and expansion of programs of education in the schools and communities, the development and implementation of programs dealing with pre-service and in-service teacher training, and the development and implementation of interdisciplinary instructional programs for all students.

The draft proposes an organizational structure to administer the environmental education plan. The Superintendent of Public Instruction will be responsible for implementing and administering the program for environmental education at the elementary and secondary school level. The Chairman of the Ohio Board of Regents will be responsible for higher education, especially teacher education programs. The Director of Natural Resources, "representing the controlling influence on the use of the natural resources," will have the responsibility for the education of the general public. These agencies and individuals will work in cooperation and coordination with the environmental education plan.

This proposal deals primarily with that portion of the total state environmental education program that is identified with the K-12 curriculum, but recognizes that the other areas are not to be neglected in the overall plan.

The formation of an Interagency Steering Committee is suggested, to be representative of various state agencies and to have the responsibility of "directing the structure, development and implementation of the statewide environmental education program." The State Advisory Committee, whose task has been advising the Department of Education on environmental education programs, would under the proposed structure place its input directly into the Interagency Steering Committee for processing.

An Environmental Education Section would have the responsibility of implementing the "recommendations, projects and programs identified by the Steering Committee."

The draft plan also proposes the creation of a State Environmental Education Center and the establishment of regional centers. The report includes the purpose and function of these centers and identifies agencies and organizations which will be effective in the overall plan for environmental education in Ohio.

OREGON

A PROPOSED PLAN OF ENVIRONMENTAL EDUCATION FOR THE STATE OF OREGON was prepared by the Conservation and Outdoor Education Advisory Committee (1970). The plan includes: Introduction, Summary of Objectives and Recommendations, Program and Curriculum Development, Teacher Training, Educational Facilities, Community Education, and Public Understanding and Support. (15 pp. plus appendices)

The plan does not contain a history of the planning process nor does it identify the particular activities undertaken by the Advisory Committee, but it does provide the following background statements:

> "Public concern for the quality of the environment and the management of the nation's resources has reached an all-time high. Many segments of the public are demanding a program for environmental understanding and support for constructive land management."
>
> "Environmental education programs must span the total spectrum from kindergarten to adult education in order to build the skills necessary for people to become involved in intelligent environmental decision making."

Program and Organizational Structure

The Advisory Committee listed three "top priority" recommendations to be accomplished during the initial stages of implementing the State Plan. These include: (1) "Establish and fill a full-time position of Environmental Education Specialist. . ." (2) "Identify and train a core of people as environmental education instructors to conduct intensive teacher training courses throughout the State of Oregon in 1971." (3) "Acquire land and develop plans in this biennium for a state environmental education center in order to accomplish essential phases of the State Plan."

The plan lists objectives and recommendations for program and curriculum development, teacher training, educational facilities, community education, and public understanding and support. One of the recommendations included under the EDUCATIONAL FACILITIES section is for providing a State Environmental Education Center. "There is a need for an environmental center where research on new ideas, techniques and programs in environmental education can be developed and field tested." The plan also recognizes needs for a variety of other environmental centers or regional centers to promote environmental education in Oregon.

The other four sections, dealing with objectives and specific recommendations for accomplishing them, are quoted on the following page:

Program and Curriculum Development

Objectives: To improve the learning of basic skills (reading, writing, arithmetic) by providing experiences that allow for application of those skills in the total environment. Application of these skills in a problem-solving approach to the environment will give children the motivation and competency to develop personal and group responsibility toward their social and natural environment.

Recommendations set forth for this objective include developing and publicizing guidelines to be followed by local school districts "in developing and implementing environmentally oriented programs at all grade levels" and publishing and distributing the state's environmental education guide "as soon as possible after revisions are complete in the summer of 1971."

Teacher Training

Objectives: To improve teacher education by giving the teacher the tools to become highly skilled in involving students in the total learning environment. The application of these tools will develop interactions between a student and his environment that can lead to the development of his responsibility toward his society and environment.

Some of the recommendations include developing guidelines "for minimum teacher competencies in environmental education," conducting "intensive teacher education courses that would be available in various regions of the state," and establishing within the higher educational system advanced degrees and fifth-year programs in environmental studies.

Community Education

Objective: To provide environmental courses that involve the community public in activities resulting in an increased understanding of the environment, man's relationship and responsibility to the environment, and a motivation to participate in environmental problem solving especially at the local level.

Recommendations include providing a plan to allow the general public to take courses at community colleges, which will allow them to become more knowledgeable and "motivated to participate in community environmental action programs," and providing a curriculum guideline for implementation in the community colleges for "career opportunities in environmental occupational training."

Public Understanding and Support

Objectives: To close the communication gap by gaining acceptance and support on the local level of existing and new school district environmental education programs and by gaining acceptance and support on the state level of a state environmental education plan.

One of the recommendations is to "develop and initiate a vigorous plan of action" to gain commitment and acceptance of the state environmental education plan by such people as legislators, state and local officials, school superintendents, and the general voting public.

TENNESSEE

TENNESSEE MASTER PLAN FOR ENVIRONMENTAL EDUCATION, prepared by the Environmental Education Committee, is in final draft form (September 1973). It contains: Foreword, Environmental Education Steering Committee, Acknowledgements, Definition, Introduction, A Summary of State Conference on Environmental Education, and The Development of the Master Plan for Environmental Education: Introduction to Master Plan, Master Plan Writing Team, Proposed Role of Educational Organizations, Proposed Role of State and Federal Agencies, Proposed Role of Civic, Professional, Business and Industrial Groups, Enabling Legislation, State EE Resource Center(s), Advisory Council, Steering Committee for EE and Communication, Curriculum Development, Implementation, Evaluation. (61 pp.)

History of the Planning Effort

In May 1971 the State Department of Education submitted a small grant proposal to USOE for a state conference on environmental education to begin preparation for a statewide plan. This proposal was written by a committee composed of several members of the Division of Instruction and the Director of Educational Services of the Department of Conservation. When assistance for this purpose was not received, this same committee continued to gather information concerning statewide commitment, and in the fall made recommendations to the Commissioners of Education and Conservation concerning a tentative plan and a state conference. The Commissioners directed this committee to select an interagency Environmental Education Conference Committee to plan and to prepare a proposal for a state conference.

Activities

The Conference Committee met in working sessions from December 1971 through March 1972. Their proposal was approved and the necessary funds for financing the conference were made available by the Commissioner of Education. The meeting was sponsored by the Departments of Education, Conservation and Public Health, with cooperation from the Cooperative Science Education Center, the Center for Teachers, the Tennesses Environmental Council, Tennessee Game and Fish Commission and the Tennessee Valley Authority.

The Conference, held in April 1972, was attended by approximately one hundred participants "representing education, communication, civic organizations, environmental councils, governmental agencies, professional organizations, planning districts, and industry" to:

1. Identify concerns about the environmental crisis

2. Explore existing endeavors and resources

3. Establish priorities, goals and objectives for environmental education
4. Suggest mechanisms for implementing a State Plan for Environmental Education.

A REPORT ON THE STATE CONFERENCE ON ENVIRONMENTAL EDUCATION, containing sections on concerns, goals, and recommendations, was distributed in December 1972. The recommendations were compiled into fourteen categories: The State Plan for Environmental Education, Appreciation and Action in Tennessee, legislation, leadership, coordination, communication, teacher education, community education, information exchange, survey of resources, in-service education, curriculum development, evaluation, environmental centers, others.

To structure these recommendations into a workable document, a Master Plan Writing Conference was held in March 1973. As the purpose of the Plan was the "coordination of efforts of local, state, federal and private groups who have an interest in the educational aspects of the environment," approximately 30 participants from public and private groups were invited to assist in its development. The charge to the writing team was "to develop a plan that would be flexible and easily modified to meet future needs."

Program and Organizational Structure

The emphasis of the plan is on the proposed roles of various groups interested in environmental education.

PROPOSED ROLE OF EDUCATIONAL ORGANIZATIONS

The proposed role of the State Department of Education in implementing the State Master Plan is to:

1. Communicate the Department's desire to assist local systems
2. Provide consultative services
3. Encourage interagency coordination
4. Identify existing instructional materials
5. Identify resource personnel
6. Develop and distribute curriculum materials
7. Provide in-service education for teachers
8. Make available the services of an environmental education specialist(s) within the Department of Education
9. Provide staff development for State Department of Education personnel

10. Promote community awareness through the facilities of the statewide educational television network

11. Assist in the development of a communications network of local coordinators of environmental programs

12. Seek ways of forming a cooperative mechanism with colleges and universities through which teachers are made aware of current societal concerns and receive training in integrating these concerns into elementary and secondary curricula.

Within the framework provided by the Master Plan and with the guidance of the State Department of Education, the primary responsibility for developing and implementing an effective environmental education program for elementary and secondary schools rests with the local school systems, including providing and/or obtaining the resources necessary.

The colleges and universities occupy a vital position in the development of environmental education programs by providing leadership in the following areas: undergraduate environmental education, pre-service and in-service teacher preparation, vocational-technical training in environmental technology and environmental management, continuing adult environmental education, environmental health education and training and environmental services to the state and community.

Specific guidelines for providing these services are included in the draft document.

PROPOSED ROLE OF STATE AND FEDERAL AGENCIES

Examples of the kinds of contributions to environmental education to be provided by state agencies include: Department of Conservation - providing facilities for school camps or study groups in state parks and forests, participation of student groups in archaeological explorations, printed materials dealing with resources and resource-use problems, etc.; Department of Public Health - serving as technical resource to educational activities investigating environmental problems, providing speakers to community groups on health ramifications of pollution, etc.; Game and Fish Commission - providing resource personnel for public programs, constructing a Wildlife Conservation-Education Center, purchasing or producing films and slide lectures to be loaned to the public, etc.

The Development District idea is proposed on the premise that "to solve our problems, our existing agencies and institutions do not need to be replaced by new ones, but do need a way to work together to accomplish what they cannot now accomplish individually." A way is needed for all the people in a common area to be involved in the making of decisions concerning programs about which they have a common interest. A development District allows local leaderhip to work together more effectively to:

1. Gain a larger scale of action by appropriate cooperation without surrendering any autonomy or prerogatives of existing units

2. Maintain, cooperatively, a technical staff and conduct some projects in a way that no single unit could afford by itself

3. Deal with problems of both rural and urban sectors on an area basis to serve the interests of each in equity and in balance

4. Provide for overall programs with maximum cooperative involvement of public and private interests at the local area level and for effective relationships of an area with other areas, the state or other states, and federal agencies and private interests beyond the area.

Operational guidelines for such districts are included in the Plan.

The role of federal agencies and related institutions can be characterized in three broad areas:

1. Sharing of human and material resources

2. Allocation of financial support for project operations which are compatible with the Master Plan

3. Production of environmental information and data resources.

Thus federal agencies constitute a key resource of each step in the environmental education development process, although they will play a diminishing role in the direct support of environmental education programs.

The Plan recommends:

> To avoid intra-organizational conflict and to promote a visible locus for the direction of a statewide environmental education program, all federal and related agencies should direct their immediate attention to the development of a functional communication channel with the Tennessee State Department of Education (the state agency with the prime responsibility for administering and directing environmental education).

Ways in which this can be accomplished are discussed in the draft document.

PROPOSED ROLES OF CIVIC, PROFESSIONAL AND BUSINESS GROUPS

Emphasis is placed on the fact that civic and professional groups must play an integral part in the advisory and decision-making phases of environmental control and education. "The relative freedom with which civic groups operate enables them to pursue short-range goals, such as preparing adults to make intelligent environmental decisions, and affords them a unique opportunity to explore long-range environmental challenges, such as behavior modification, overpopulation, land use practices, natural resource depletion, and improved transportation systems." Specific recommendations are made for promoting and supporting environmental education programs for public and private schools as well as for the general public.

Other Implementation Recommendations

The Master Plan recognizes that "without legislation providing appropriations for environmental education it is doubtful that a quality program will develop." Therefore a major recommendation calls for the Departments of Education, Conservation, and Public Health to support a legislative package for environmental education which would make provisions for the following needs:

1. Establishment of a State EE Resource Center(s) staffed by a full-time Environmental Education Specialist and additional office personnel
2. Permanent establishment of a Steering Committee for Environmental Education and Communication
3. Selection of an Advisory Council for Environmental Education and Communication
4. Financial appropriations which would provide educational grants-in-aid to public schools and institutions of higher education for the support of EE programs and materials
5. Evaluation of the Master Plan for Environmental Education.

Detailed recommendations for carrying out these proposals, if enacted, are included in the document.

TEXAS

A NEW ENVIRONMENTAL ETHIC, a Texas State Plan for Environmental Education, is a report prepared by the Texas Advisory Council on Environmental Education (March, 1973). The report includes a Foreword, Introduction, Statement of Goals and Objectives, Proposed Structure, Operational Structure Chart, Functions of Participating Sectors, Time-Phase Sequence, and Implementation Schedule. (23 pp.)

History of the Planning Effort

As a result of the need for a coordinated effort in resolving environmental problems and extending environmental education to both formal and nonformal systems, the Texas Advisory Council on Environmental Education was appointed in mid-1971 by the governor "to develop a statewide coordination and leadership mechanism for environmental education in Texas." It was composed of representatives from both the public and private sectors.

The Council was funded by both the state and federal government to carry out the planning process for environmental education. It received support from the Office of the Governor, the Texas Education Agency and Coordinating Board, Texas College and University System. From the federal government, it received a grant from USOE to develop a state plan.

Activities

Some of the activities in which the Council engaged include: Sponsoring and organizing a statewide annual observance of Environmental Education Week for Texas; identifying and cataloging environmental education needs and resources in Texas among the colleges and universities, public schools, business and industry groups, environmental and civic organizations, and public officials; preparing a statewide Environmental Speakers Bureau; distributing a series of publications to stimulate public awareness of environmental problems; and co-sponsoring environmental workshops for teachers.

Based upon the investigations and extensive analyses of input from various sectors in the state, the Council established four major goals along with numerous objectives to be employed.

Proposed Program and Organizational Structure

The plan recommends that a state level Office of Environmental Education (OEE) be established within the Texas Department of Community Affairs. The OEE will have a director who will act as the administrative head of the office and be responsible to the Director of Community Affairs.

The primary functions of the OEE will be planning and coordinating both formal and nonformal environmental education activities throughout the state, establishing a statewide environmental education clearinghouse and library, and operating an Environmental Speakers Bureau. The OEE will maintain regional offices conforming to the Governor's State Planning Regions. Staffed by regional representatives, these offices will be responsible for "coordinating and conducting environmental efforts" in their respective regions.

WASHINGTON

A STATE PLAN FOR ENVIRONMENTAL EDUCATION (1970) includes: The Need for Environmental Education, The Status of Environmental Education, Goals, Organizational Scheme, and Evaluation. (11 pp.)

History of the Planning Effort

Recognizing the need to provide carefully planned educational programs that would provide the citizens with much needed understanding of a "realistic balance between preservation and intelligent economic development," a plan was developed which would be comprehensive in nature and "serve the best interests of the total population of the State of Washington."

The position of Supervisor of Environmental Education and the development of the State Plan were made feasible through the close cooperation of the State Office of Public Instruction and the State Department of Natural Resources. The Commissioner of Public Lands along with interested organizations, individuals and agencies aided in the development of this plan.

Activities

The plan does not state the roles of the individual participants in carrying out the planning process nor the particular activities which were conducted.

Program and Organizational Structure

The goals of the state plan include: Provide for meeting student needs; facilitate the selection and development of program content; aid in the improvement and maintenance of the environment; provide for participation and involvement of students, teachers, community, institutions, industry, government (agencies, legislature, congress); generate support and commitment of the individuals and groups (formerly mentioned); provide teachers orientation and commitment to environmental studies; and obtain interinstitutional cooperation.

The plan cites various groups whose cooperative efforts must be solicited if the plan is to be functional. These groups include students, educators, resource people, community, industry, educational institutions, governmental agencies, legislature and congress. Involvement and participation might be expressed by an example of one of these particular groups: Students will be involved in "developing curriculum, the design of learning activities, workshops, community action, production and selection of learning resources, development of communications, and evaluation."

The organizational structure for the plan includes an Advisory Board on Environmental Education to assit in implementing the state plan, interagency cooperation among various groups, and the establishment of the Supervisor of Environmental Education in the Office of State Superintendent of Public Instruction. The exact roles which these groups and individuals will play is not stated in the plan.

Under "Staff Development," the plan includes provision for conducting workshops throughout the state where participants will aid in the training of others to meet specific needs of students, teachers, and program development.

Guidelines for curriculum development and other materials have been prepared by the Washington State Environmental Education Curriculum Advisory Committee. Consultative services are available from the Office of the State Superintendent of Public Instruction. Statewide workshops, properly coordinated and organized, need to be provided so as to make an immediate impact on the learning of boys and girls. To provide the learner with "real, concrete, first hand experiences," a wide range of resources must be provided. The plan identifies areas which will be utilized in providing this type of instruction.

The evaluation section of the plan is one of the most important aspects of the plan. "Evaluation of environmental education should be an integral part of all phases of the plan. . . . "Used as a part of a system, it will result in continuing revision of that system so that it grows more powerful with use." Thus, the plan stresses the important function which evaluation will play in the development and implementation of the previously mentioned sections of the plan.

* * *

A recent report (December 1972) to the Joint Committee on Education, Washington State Legislature, noted the following specific recommendation:

> "Develop a comprehensive master plan for Environmental Education in Washington which specifies goals, guidelines and an implementation model, as well as strategies for funding and evaluating all Environmental Education efforts. An abbreviated plan currently exists, but is not definitive in such a way as to be of specific assistance in providing the legal, philosophical or operational bases for unifying the diverse kinds of efforts that are ongoing in our state. It gives a basis to grow from since the current plan has helped establish a foundation and provided the direction to achieve our present level of development."

WISCONSIN

ENVIRONMENTAL EDUCATION: A NEGLECTED FOUNDATION FOR ENVIRONMENTAL QUALITY, a First Report on Improving Environmental Education in Wisconsin, was prepared for the Wisconsin Environmental Education Council by its Advisory Committee (Discussion Draft, March 1973). The contents of this draft include: Introduction, Summary, Goals and Objectives of Environmental Education, How This Report Was Prepared, Preliminary Findings and Analysis, The Plan: Priorities and Recommendations, and Implementation. (30 pp. plus appendices)

"This first report is offered as a vehicle for widespread discussion and is not intended to be a comprehensive plan for environmental education."

The report discusses the various activities which were undertaken by the Advisory Committee in collecting and analyzing the environmental education programs in the state. The Committee divided the Wisconsin public into "twelve sectors as targets for improving the performance and contribution of the various participants in environmental education." The twelve sectors include: elementary and secondary education; vocational, technical and adult education; higher education; youth and student organizations; environmental and conservation organizations; service, fraternal, and religious organizations; citizen and civic associations; agriculture; business and industry; labor organizations; instructional and commerical media; state and federal agencies.

"An object of this plan is to describe some initial steps in a progressively improving environmental education program for Wisconsin." The report identifies "three dimensions of a program: Who participates, how to improve it, and what environmental issues to deal with."

It is proposed, initially, that five sectors be singled out for analysis. These sectors include: Instructional and commerical media; elementary, secondary, and higher education; environmental and related voluntary organizations; industry and business; and state and federal agencies.

Some of the activities "recommended for implementation under this program" include: teacher in-service education, regional resource centers, physical facilities, state clearinghouse, and instructional television.

"The third dimension of this Plan's recommendations focuses on the problems of environmental protection, use, or management." The purposes of this third dimension is to add a "substantive base to the priorities for involvement and activity. . . ." "Further, identification of priority issues helps make distinct the objective of environmental education to go beyond awareness of environmental matters to the understanding, skills, and motivation necessary for resolution." Some examples of the recommended issues included in this report are energy, balanced transportation, mining, and environmental health hazards.

For copies of state plans and/or more detailed information about their planning effort, we suggest you contact the following people:

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Appendix C

QUESTIONNAIRE AND SUMMARY OF REPLIES

The questionnaire mailed to state planners prior to the national conference held in May 1973 begins on Page 201. The details of our methods of processing the results are on file, but it seems sufficient for our purposes here to say only that the summary of the replies represent 23 states, a 55% return of those from whom we solicited information.

The first set of questions sought information regarding the inception of the master planning effort, including some of the assumptions and early decisions planners made.

It is clear that educators, together with state agencies, were far and away the most responsible for the original decisions to launch a planning effort. A distant third were environmentalists; fourth were interested citizens. State agencies, including the departments of education, were cited most often as responsible for the preparation of the master plan. In second place were educators. The third most often cited was the Governor's office; fourth were environmental education councils.

The highest motivating factor seems to have been the belief that a master plan was an effective way to promote environmental education. This was followed at some distance by the fact that various "interests" had exerted pressure for plans, and still farther in third place was the fact that a grant for master planning was available. Of some interest is the fact that ranked last was the belief that a master plan was the best way to attack environmental problems. Given the problem-centered focus of most definitions of environmental education, ranking this last seems a bit unusual even considering that arguments could be raised that education isn't the "best" way to solve environmental problems.

Among the things that the master plan was intended to accomplish, rated a close first and second place, were the formalization of a structure for implementing the programs and the provision of a basic framework for putting environmental education into perspective. A distant third and fourth were to improve public awareness and motivate action for environmental education. The next to the least most likely intended accomplishment was the formulation of possible legislation.

It seems quite clear that the majority of the states at the time planning was undertaken intended their plan to be directed toward education in both formal and non-formal spheres. However, approximately one-third of the respondents indicated that their plan would be directed only toward formal education.

Clearly the most intended use of the master plan was as a general guide for the implementation of environmental education programs, subject to modification and revision. A distant second and third was as a final document but with no provisions for implementation, and as a final document capable of immediate implementation. It is interesting that statements regarding implementation in either of these two cases were rated well below the use of the document as a general guide. The intended users of the master plan document were primarily educators, with government agencies and the general public listed second and third.

At the inception of the planning effort, only a moderate level of general public interest in environmental education was indicated.

The next section of the questionnaire sought answers to questions which helped describe the planning process itself as it was actually carried out. There were fewer responses to these questions as some of the respondents were not yet far enough into the planning stage.

It seems very clear that a cross section of citizens and government representatives were the most often used to draw up the plan, with concerned citizens and experts in that order being utilized for advice.

Of the three constraints -- time, funds and human resources -- a simple rank ordering in order of importance to the planning process indicated that all three were very closely clustered as being of almost equal importance; but a scaled rating of the extent to which time, funds and human resources presented a problem indicated that a lack of funds was considered the most severe, followed by time, followed by human resources. However, lack of both funds and time were considered only moderate problems; while the lack of human resources was considered to be less than moderate, more nearly no problem at all.

The values placed on the planning process in terms of the following three purposes were rated and compared: The most important of the three was as a guide to implementing environmental education programs, rated somewhat higher than "of some importance." Next was the gathering of information; and finally, exerting pressure for environmental education action. These comparative values are based on the averaging of responses; a large number of respondents ranked the first two very close to being "of primary importance."

There were a whole series of questions related to the use of councils, boards, trusts and similar governing bodies. Ninty-five percent of the states responding indicated that such a body was involved in their planning effort. The overwhelming majority of council members were appointed. A distant second were those who volunteered, and third were those who were elected. The majority had specific duties and accountability. It is interesting to note that the members of only 59% of these bodies were selected on the basis of particular qualifications, and only 13% of them were compensated in some way financially, usually through assistance with travel, per diem and other incidental expenses. The results with respect to how effective these councils or boards were in fulfilling their roles were fairly evenly spread across the scale, with the response being a little bit heavier on the high side, but only "moderately effective" at best. Compared to how effective people felt such councils were, it is clear that most respondents felt that such a body is very important to a planning effort, with the highest number of responses being placed on number 7 of a seven-point scale.

There were also a series of questions related to the project staff. Seventy-seven percent of the states indicated they used a working staff to complete their master plan. With respect to these staff positions, 78% of those responding indicated that their staff was salaried, 50% indicated use of volunteer staff, 75% indicated that they used staff assigned from other organizations or agencies. The relationship between the salaried and volunteer staff with those assigned from other organizations or agencies is not clear, but we interpret assigned personnel to be included in the number of salaried staff. The respondents indicated that the use of a full-time working staff was very important. In fact, it was rated as a 6.36 average on a seven-point scale.

With respect to how the planning effort was funded, the largest number of respondents indicated that the state government paid for the planning effort while nearly half as many indicated that the federal government had put up the money. The remaining possibilities fell way below and spread out over the entire list. The most often used form of funding was government appropriations, followed very closely by grants. Third was the simple payment of expenses like travel, per diem and the like.

The respondents were asked to indicate the extent to which various groups of people in society were used or were involved in the planning process. Included in these groups were educators, individual citizens, grovernments, business and industry, environmental groups, private organizations, and others. The most heavily used, as would be expected based on previous results, were educators followed by government officials and environmental groups. Individual citizens, private organizations, and business and industry in that order closed out the list of planning participants. It is interesting to note that no group was used more than a little better than moderately on the average, with none being used exclusively.

A second series of questions was asked regarding the extent to which these same groups were used to gain approval for the contents of the plan. The most heavily used, again, were educators followed by government officials and environmentalists. In all cases these were rated at or near "moderately." Well below moderate use was made of business and industry, and less than moderate use was made of individual citizens and private organizations.

In an attempt to find out the approximate number of people who were involved in the planning process at several levels, three questions were asked. The answers given to these questions are somewhat confusing. The first question asked how many were involved in any way with the planning process; the range of responses was 11 to 1,500, with the average being about 350. The second question was the number who responded by attending meetings, hearings, answering questionnaires, etc. This is a more intense level of involvement than the former, yet the respondents indicated that far more people were involved in this level of intensity. The range was 29 to 13,900, the average about 1,500 per state. The final question asked how many were truly active over a sustained period; the range was from 4 to 100, and the average was exactly 25.

The respondents were asked to indicate the extent to which the document served as a source of information, as a guide to implementing the programs, as exerting pressure for environmental education action, and as a set of goals or a target. Of greatest value was the document as a guide to implementing environmental education programs. This was followed by the document as a set of goals, then as a source of information, and finally as a means for exerting pressure for environmental education action, the latter being only of moderate value. The overwhelming number indicated that their plan did or would represent a guideline, with further planning of particular activities required.

There were two questions with respect to kinds of funding in the planning process. The average using local funds was less than "to some extent," with a large number responding "not at all." In-kind resources were used a little more than "to some extent," with several indicating an almost exclusive use of in-kind resources.

The question was then asked about the extent to which there was an increase of interest among the general public as a result of the master planning, and the answers indicated slightly more than a moderate increase.

The use to which planners put public involvement as an element of the planning process indicates that the primary purpose was to motivate the public interest, awareness, and action, followed somewhat closely by efforts to gather information. A distant third was its use as a power base for political considerations. The fourth most common response, although at some distance from the first two, was the fact that the public was not involved to a significant degree.

Of those responding to the questionnaire six months ago, 35% indicated that their planning was completed, with implementation going on; some 22% indicated they had completed the planning, but there was little or no implementation taking place. Thirteen percent indicated they were near the end of planning; 13% indicated they were well into planning. Another 13% indicated they were just formulating the plan, and 4% indicated they had just started planning. Of those indicating that their plans were completed, 67% indicated they had evidence that the plan had been successful. A list of the evidences are included in the summary of replies on Page 214.

The last major section of the questionnaire sought information regarding the implementation stage of the master plans. While only some 50% of the respondents were able to answer in terms of a completed master plan, several others answered in terms of making some projections based on the work completed to date.

The first question asked the extent to which educators, individual citizens, government, business and industry, and private organizations were involved in the implementation of the plans. The largest group, more than moderately involved, were educators followed in descending order by government, moderately involved; private organizations, a little less than moderately involved; individual citizens and business and industry who were somewhat less than moderately involved. At a fairly high level were "others," although only a few indicated the involvement of environmentalists.

The next question involved areas which would be singled out in various states for implementation. The most common area designated was curriculum development for formal education, followed closely by in-service teacher training; then clearinghouses and pre-service teacher training; with a collection of "others," mass media, and environmental study areas rounding out the list.

There were five questions specifically related to funding of the master plan for purposes of implementation. In only 45% of the cases did respondents indicate that their plan included a provision for funding the implementation phase. State and federal government were listed first and second followed by local government and school districts, business and industry, universities, the general public, and then foundations. A list of the provisions indicated that government appropriations led the list followed by grants, in-kind services, and the redirecting of resources and gifts. However, when asked what the chances were that the funding would actually be secured, the respondents indicated an average of slightly less than moderate chance and that slightly less than half the amount of funding sought would actually be obtained. A substantial number indicated that the chances were not good, and that none of the funding would be obtained. Two questions relating to the use of local funds and in-kind resources indicated that less than moderate extent would be made of local funds for implementation and a moderate extent would be used for in-kind resources.

Finally, a question related to who would be responsible for continuing leadership and coordination of the activities indicated that state departments of education were by far the most common group followed by environmental education associations or councils, but at half the number. In third place, at almost half again, was the Governor's office followed in descending order by school districts, private organizations, and departments of natural resources.

Summary of Replies

ENVIRONMENTAL EDUCATION MASTER PLANNING QUESTIONNAIRE

In the following questionnaire please check the statement which seem to be closest to your situation or opinion. Where more than one statement applies, rank order them by inserting the appropriate rank (1, 2, 3, etc.) in the space opposite the applicable statements. Where a scale measure is provided, circle the appropriate number.

("EE" is used as an abbreviation for "environmental education" throughout.)

INCEPTION OF YOUR PLANNING EFFORT

Please respond to the questions in this part from your opinion, judgment or intention at the time your planning effort was first conceived.

1. Who originally decided to do a master plan?

(5) The Governor
(6) The Legislature
(2) State agency(s)
(   ) Local government(s)
(   ) Business & industry
(3) Environmentalists
(1) Educators
(7) A private organization
(4) Interested citizens
(8) Other ____________

2. Under what auspices did the creation of the master plan fall?

(3) The Governor
(7) The Legislature
(1) State agency(s)
(   ) Local government(s)
(   ) Business & industry
(   ) Environmentalists
(2) Educators
(5) A private organization
(4) Interested Citizens
(4) Other EE Council

3. What was the motivation to do a master plan?

(3) A grant for master planning was available.
(2) Various interests exerted pressure for a plan.
(1) It was believed that a master plan was the most effective way to promote EE in the state.
(6) Heard that others had success in EE by using a master plan.

(5) A master plan was thought to be the best way to ascertain the needs in EE.
(4) A master plan was seen as the first need that should be filled.
(8) A master plan was thought to be the best way to attach environmental problems.
(7) Other combining efforts

4. Which of the following describes what your master plan was intended to accomplish?

(5) Improve the environment.
(3) Improve public awareness.
(6) Generate public interest.
(4) Motivate action in EE.
(1) Formalize a structure in order that EE programs could be implemented.
(2) Provide a basic framework in order that EE could be put in perspective.
(7) Formulating possible legislation.
(8) Other ____________________

5. At the time planning was initially undertaken, the planning was primarily directed toward:

(2) Formal education
( ) Nonformal education
(1) A mixture of formal and nonformal education
( ) Other ____________________

6. It was intended that the master plan would be:

(3) A final document capable of immediate implementation.
(2) A final document with no provisions made for implementation.
(1) A general guide for implementation of EE programs, but subject to modification and revision.

7. Who were the intended users of the master plan document?

(1) Educators
(2) Government agencies
(3) General public
(4) Private organization(s)
(5) Interest group(s)
(6) Other Tri-county area

8. At the inception of your master plan, what was the level of general public interest in EE?

1 2 3 4 5 6 7 Average = 4.

Nonexistent Moderate Intensive

PLANNING STAGE

In this section, describe the planning process itself as it was carried out.

9. The master plan was drawn up by:

   (3) Experts.
   (2) Government representatives.
   (1) A cross-section of citizens.
   (4) Other Teachers and Administrators

10. Those drafting the master plan utilized the advice of:

    (2) Experts
    (1) Concerned citizens
    (3) Other Special individuals or representatives from groups

11. What were the constraints in terms of the following resources in initiating a master plan?

    A. Time. Lack of time was:

    1 2 3 4 5 6 7 Average = 3.95

    A Severe Problem — Moderate Problem — No Problem

    B. Funds. Lack of sufficient funds was:

    1 2 3 4 5 6 7 Average = 3.81

    A Severe Problem — Moderate Problem — No Problem

    C. Human Resources. Lack of qualified and interested people was:

    1 2 3 4 5 6 7 Average = 5.40

    A Severe Problem — Moderate Problem — No Problem

    D. Prioritize these three factors in order of their importance to your planning process.

    (1) Time
    (2) Funds
    (2) Human Resources

12. During the planning what was the value placed on the planning process itself in terms of the following:

A. Gathering information

1	2	3	4	5	6	7	Average = 5
No Importance			Some Importance			Primary Importance	

B. Guide to implementing EE programs

1	2	3	4	5	6	7	Average = 6
No Importance			Some Importance			Primary Importance	

C. Exerting pressure for EE action

1	2	3	4	5	6	7	Average = 4
No Importance			Some Importance			Primary Importance	

D. Other ______________________________

1	2	3	4	5	6	7	Average 5.4
No Importance			Some Importance			Primary Importance	

13. Was there a Council, Board, Trust, or similar governing body, involved in the master planning?

Yes .95 No .05

A. If yes, were the following functions of their role clearly and specifically set out?

Duties:	Yes	.86	No	.14
Responsibilities:	Yes	.81	No	.19
To whom accountable:	Yes	.77	No	.23

B. Were there particular qualifications (skill, occupation, position in the community, etc.) which the members must possess?

Yes .59 No .41

C. If yes, what were they?

____

D. Are they compensated financially?

Yes .13 No .87

E. How were they selected?

(1) Appointed
(3) Elected
(2) Volunteered
(4) Other Aid solicited

F. How effective were they in fulfilling their role?

1	2	3	4	5	6	7	Average = 4.68
Not At All			Moderately Effective			Very Effective	

14. Whether or not you had such a group, how important do you think such a body is in this sort of master planning effort?

1	2	3	4	5	6	7	Average = 6.26
Not At All			Moderately Important			Very Important	

15. Did your planning project have a working staff?

Yes .77 No .23

A. If yes, to whom were they accountable? ________________

B. Were any of the staff positions--

--Salaried?	Yes .78	No .22
--Volunteers?	Yes .50	No .50
--Assigned from other organizations or agencies?	Yes .75	No .25

16. Regardless of whether you had a staff, how would you evaluate the importance of a full-time working staff?

1	2	3	4	5	6	7	Average = 6.36
Not At All			Moderately Important			Very Important	

17A. How was your master planning effort funded?

(2) Federal government
(1) State government
( ) Local governments or school districts
(5) Universities
(6) Foundation(s)
(4) Business/industry
(3) General public
(5) Other ____________________

B. What form did this funding take?

(2) Grants
( ) Endowments
( ) Due and fees
(1) Government appropriations
(5) Gifts
(4) Contracts
(3) Other In-kind

18. To what extent have the following been involved in the planning process?

Educators:

1 2 3 4 5 6 7 Average = 4.83
Not At All — Moderately — Exclusively

Individual Citizens:

1 2 3 4 5 6 7 Average = 3.74
Not At All — Moderately — Exclusively

Government(s):

1 2 3 4 5 6 7 Average = 4.43
Not At All — Moderately — Exclusively

Business & Industry:

1 2 3 4 5 6 7 Average 3.22
Not At All — Moderately — Exclusively

Environmental Groups:

1 2 3 4 5 6 7 Average = 4.26
Not Moderately Exclusively
At All

Private Organization(s):

1 2 3 4 5 6 7 Average = 3.78
Not Moderately Exclusively
At All

Other:

1 2 3 4 5 6 7 Average = 4.20
Not Moderately Exclusively
At All

19. To what extent did you seek approval of the plan by:

Educators:

1 2 3 4 5 6 7 Average = 4.86
Not Moderately Exclusively
At All

Individual Citizens:

1 2 3 4 5 6 7 Average = 3.81
Not Moderately Exclusively
At All

Government(s):

1 2 3 4 5 6 7 Average = 4.57
Not Moderately Exclusively
At All

Business & Industry:

1 2 3 4 5 6 7 Average = 3.14
Not Moderately Exclusively
At All

Environmental Groups:

1 2 3 4 5 6 7 Average = 4.19
Not At All Moderately Exclusively

Private Organization(s):

1 2 3 4 5 6 7 Average = 3.52
Not At All Moderately Exclusively

Other:

1 2 3 4 5 6 7 Average = 3.00
Not At All Moderately Exclusively

20. What was the approximate number of people who--

--were involved in any way with your planning process.	Range: 11 to 1,500
--responded by attending meetings, hearings, answering questionnaires, etc.	Range: 29 to 13,900
--were truly active over a sustained period of time.	Range: 4 to 100

21. What value do you place on the master plan document itself in terms of the following:

A. As a source of information?

1 2 3 4 5 6 7 Average =
No Value Moderate Value Great Value

B. As a guide to implementing EE programs?

1 2 3 4 5 6 7 Average =
No Value Moderate Value Great Value

C. Exerting pressure for EE action?

1	2	3	4	5	6	7	Average = 4.29
No Value			Moderate Value			Great Value	

D. As a set of goals or target?

1	2	3	4	5	6	7	Average = 5.90
No Value			Moderate Value			Great Value	

E. Other: ______________________________

1	2	3	4	5	6	7	Average = 6.25
No Value			Moderate Value			Great Value	

22. Does/will your plan represent--

(1) A guideline with further planning of particular activities.
(2) A full blueprint with implementation plans included.
(3) Other Identification of other resources

23A. To what extent have you used local funds in the planning process?

1	2	3	4	5	6	7	Average = 3.19
Not At All			Some Extent			Exclusively	

B. To what extent have you used local in-kind resources (individual's time, facilities, etc.) in the planning process?

1	2	3	4	5	6	7	Average = 4.90
Not At All			Some Extent			Exclusively	

24. To what extent has there been an increase in the level of interest among the general public as a result of your master plan efforts?

1	2	3	4	5	6	7	Average = 4.60
No Change			Moderate			Great Change	

25. If you used public involvement in the planning process, what was the purpose?

(2) To gather information.
(1) To motivate public interest, awareness, and action.
(3) As a power base for political considerations.
(5) Other Broad representation of all groups
(4) Public was not involved to any significant extent.

26. What is the present stage of your planning?

(3) Formulating plans for doing a master plan.
(4) Just starting the planning.
(3) Well into planning.
(3) Near end of planning.
(1) Planning completed, with implementation going on.
(2) Planning completed, with little or no implementation going on.

27A. If your plan is completed, do you have any evidence that it has been successful? Yes .67 No .33

B. If yes, what evidence:

28. If you had it all to do over again, what, if anything, would you do differently?

IMPLEMENTATION STAGE

This section deals with the projects or programs that were initiated within the parameters of the master plan.

29. To what extent are the following involved in the implementation of the master plan?

Educators:

1 2 3 4 5 6 7 Average = 5.19
Not At All — Moderately — Exclusively

Individual Citizens:

1 2 3 4 5 6 7 Average = 3.81
Not At All Moderately Exclusively

Government(s):

1 2 3 4 5 6 7 Average = 5.00
Not At All Moderately Exclusively

Business & Industry:

1 2 3 4 5 6 7 Average = 3.38
Not At All Moderately Exclusively

Private Organization(s):

1 2 3 4 5 6 7 Average = 3.94
Not At All Moderately Exclusively

Other:

1 2 3 4 5 6 7 Average = 4.50
Not At All Moderately Exclusively

30. If your plan is completed or nearly so, which of the following areas were singled out for implementation (rank order).

(1) Curriculum development for formal education
(2) In-service teacher training
(4) Pre-service teacher training
(6) Mass media
(3) Clearinghouse or centers
(7) Environmental study areas
(5) Other ____________________

31A. Does the master plan include provision for funding the implementation of the plan?

Yes .45 No .55

B. If yes, is this provision --

(1) an indication of specific sources of funds?
(3) a list of funding already secured?
(2) other

C. What is the source(s) of funding?

(2) Federal government
(1) State government
(3) Local governments or school districts
(5) Universities
(6) Foundation(s)
(4) Business/industry
(5) General public
( ) Other

D. What form does this funding take?

(2) Grants
( ) Endowments
( ) Dues and fees
(1) Government appropriations
(4) Gifts
( ) Contracts
(3) Other: In-kind
Redirection of existing funding

32. What are the chances (in your opinion) that funding for implementation will be secured?

1	2	3	4	5	6	7	Average = 3.79
Not Good			Moderate			Very Good	

33. How much of the funding sought do you feel will actually be obtained?

1	2	3	4	5	6	7	Average = 3.53
None			Half			All	

34. Who is/will be responsible for continuing leadership and coordination of EE activities?

(1) State department of education
(5) State department of natural resources (or equivalent)
(3) Governor's office
(4) School districts
(4) Private organization
(2) Other EE association or council

35A. To what extent have you used local funds in implementation?

1 2 3 4 5 6 7 Average = 3.44
Not At All Moderately Exclusively

B. To what extent have you used local in-kind resources (individual's time, facilities, etc.) in implementation?

1 2 3 4 5 6 7 Average = 4.50
Not At All Moderately Exclusively

INDIVIDUAL COMMENTS ON QUESTIONNAIRE ITEMS

Question 13 C. As to the Council, Board, Trust or governing body, what were their particular qualifications?

- Background, training, occupation, interest skills
- Experience and interest in EE
- Represent their particular organizations, associations, agencies, etc.
- Interest and concern
- Representative of geography and position
- Position, interest and knowledge
- Diverse representation, authority, visible and respected by general public
- Each was to represent one interest group in the community
- Interest group - representative
- Special interest and expertise in environmental activities
- Interest and involvement in environmental affairs, broad representation of education, business, citizens
- Experience and interest in EE
- Multi-faceted backgrounds for membership with high motivation
- Cross-section of professions
- The basis of experienced interest, demonstrated skill and to represent a broad spectrum of EE interest groups
- Membership determined by agency position, i.e., heads of state agencies responsible for EE and a volunteer citizens' advisory committee

Question 15 A. To whom was your working staff accountable?

- Volunteers along with regular work of State Department Committee Chairman
- State Department of Education
- Committee Chairman and Governor
- Council
- Steering Committee
- Public schools
- Advisory body
- Chairman of task force
- Contracting organization first; Advisory Council second

Question 27. What evidence do you have that your plan has been successful?

- Interest - more programs at local levels
- Records of participation and evidence of involvement
- Acceptance and cooperation of participating groups
- Some provisions of the plan have been completed, some near completion, budget requests have been submitted to the legislature
- Legislative acceptance and Government's support, requests for plan and offers of assistance in implementing plan
- Legislation - action by State Department of Education - Recommendations acted upon
- Requests for assistance, requests to participate in planning and implementation
- More groups have acted/are interested in acting
- Full-time coordinators
- Course offerings in colleges and universities, teacher in-service underway, local district pilot programs, student groups, curriculum guideline formulated, local EE coordinators have been designated
- Positive comments from various social sectors and government entities
- Interests are looking to it and the continuing process as a guide for cooperation

Question 28. If you had it all to do over again, what, if anything, would you do differently?

- Start with more time and increase the involvement
- Started earlier and not have waited for potential funding from federal sources
- More detailed guidelines should be given schools, or more strong urging be made toward making EE part of each schools' curriculum
- Involve wider variety of people in committees and be more selective in choosing members of committees
- Seek greater funding - obtain staff
- Try to obtain more professional staff at the State Department of Education level
- Allow more time between information gathering and plan writing
- Get funds so implementation could be guaranteed, get funds to do a better job of needs assessment, get funds to employ full time coordination

- Put more energy in publicizing the effort
- Strong public relations programs with public, promotion with governor, legislators, agency heads, get state government commitment (concern and cash) in the very beginning
- Put the MP monies into specific projects until there were enough projects and EE things going on - including various possibilities for funding - to justify an overall planning endeavor
- Involve more people, take a longer amount of time and secure money from local sources
- Have council members exert themselves more, give guidance to staff, have steering committee perform specific things in given time lines
- Master plan would be completed first
- Worked for help from state legislators, worked with professional editors
- Do it sooner
- Have subgroups attack specific problems and needs
- More detailed, greater exposure
- Organize council (steering committee) with spelled out authorities and responsibilities (i.e., by-laws, etc.); begin immediately to find the means of permanently financing implementation and continued effort
- Do a plan which includes implementation strategies - a blueprint for action

Question 38. Regarding the future, and implementation of EE efforts, I am specifically interested in:

- Networks of EE centers (ECO-NET)
- As a National Park Service employee, with assignment as an EE Specialist, can assist school districts in EE and in use of National Parks for EE
- Multidisciplinary curriculum materials and models for effective in-service training
- K-12 implementation
- How to do EE, primarily K-12, without outside funding
- Implementation, funding, sustaining the effort
- Working with individuals, school systems and organizations in workshops, cooperative agreements in EE with school districts, ESA development, any synergistic effort that results in a public more tuned into the environment and its management

- Information coordination and dissemination systems, workshop structuring, potential sources of project funding
- Motivation and skills necessary for sound citizen action
- Curriculum development
- Investigating possibilities of statewide organization with enough clout to generate, prioritize and regulate EE implementation in all areas of concern
- Guidelines for approaching implementation of K-12 EE programs
- Planning strategies
- Specific methods for community involvement
- Informing K-12 classroom teachers of new EE methods and concepts; reaching adults with methodology for creating change in the system
- Teacher training (pre- and in-service), curriculum development K-12

Appendix D

CONFERENCE ON MASTER PLANNING FOR ENVIRONMENTAL EDUCATION

YMCA of the Rockies, Estes Park, Colorado
May 16-19, 1973

Conference Schedule

Wednesday, May 16

2:45 - 4:30 p.m.	Conference bus from Stapleton Airport to Mt. Ypsilon Lodge, YMCA of the Rockies, at Estes Park.
4:30 - 6:00 p.m.	Registration at Mt. Ypsilon lobby and room assignments.
6:00 - 7:00 p.m.	Dinner in the Pine Room.
7:00 - 8:00 p.m.	Opening session: conference agenda, procedures and orientation in the Mt. Ypsilon lower lounge.
8:00 - 9:20 p.m.	Social hour in the Mt. Ypsilon lower lounge.
9:30 -	Campfire

Thursday, May 17

7:30 - 8:00 a.m.	Breakfast in the Pine Room.
8:00 - 8:30 a.m.	General presentation: Background on master planning, summary and interpretation of questionnaire results by Richard Rocchio of the Center for Research and Education - Dick Hall.
8:30 - 10:00 a.m.	TASK GROUP SESSION I - The value of the planning process and the relevance of the completed master plans for EE. Location to be announced.
10:00 - 10:15 a.m.	Break
10:15 - 12:00 a.m.	TASK GROUP SESSION II - The constraints upon the initiation and completion of a master plan for EE. Location to be announced.
12:00 - 1:00 p.m.	Lunch in the Pine Room.
1:00 - 3:00 p.m.	Presentation and discussion: The nature of EE, its opportunities and constraints as it relates to planning by Bill Stapp, University of Michigan - Dick Hall.

3:00 - 3:15 p.m.	Break
3:15 - 5:15 p.m.	Concurrent Task Groups: TASK GROUP SESSION III - The roles, responsibilities, and relative importance of different kinds of people, groups, and organizations involved in master planning for EE. Location to be announced. TASK GROUP SESSION IV - The content of the completed master plan. Location to be announced.
5:15 - 6:00 p.m.	Free time
6:00 - 7:00 p.m.	Dinner in the Pine Room.
7:00 - 9:00 p.m.	Free University seminar sessions: 1. Environmental Education Centers or Clearinghouses - Dick Hall. 2. Models and approaches to master planning, their assets and constraints - Dick Hall. National Advisory Council meeting in the Library.
9:00 - 9:30 p.m.	Light show in Texas Hall.
9:30 -	Informal discussions and refreshments in the Mt. Ypsilon lower lounge.

Friday, May 18

7:30 - 8:00 a.m.	Breakfast in the Pine Room.
8:15 - 10:00 a.m.	Concurrent Task Groups to begin in Dick Hall: TASK GROUP SESSION V - The roles, responsibilities and relative importance of different kinds of people, groups and organizations in implementing the EE master plan. TASK GROUP SESSION VI - Defining master plan success -- what is it, what outcome priorities should be established
10:00 - 10:15 a.m.	Break
10:15 - 10:30 a.m.	Reports from morning Task Groups to be held in Dick Hall.

10:30 - 12:00 p.m.	General discussion: Master plan evaluation -- the evidences of success in approach as well as outcomes. To be held in Dick Hall.
12:00 - 12:30 p.m.	Lunch in the Pine Room.
12:30 - 1:00 p.m.	U. S. Office of Education presentation by Walter Bogan in the Pine Room.
1:15 - 3:00 p.m.	General discussion: Funding the implementation of master plans. To be held in Dick Hall.
3:00 - 3:15 p.m.	Break
3:15 - 5:00 p.m.	Free University seminar sessions in Dick Hall: 1. In-service teacher training in EE. 2. Mass media in planning and for implementation. 3. K-12 curriculum development and guidelines for implementing of EE in school systems.
5:00 - 6:00 p.m.	Free time
6:00 - 7:00 p.m.	Dinner in the Pine Room.
7:00 - 9:30 p.m.	Conference summary in Dick Hall.
9:30 -	Social hour in the Mt. Ypsilon lower lounge.

Saturday, May 19

7:30 - 8:15 a.m.	Breakfast in the Pine Room.
8:15 - 8:30 a.m.	Check-out - Mt. Ypsilon lobby.
8:30 a.m.	Conference bus from Mt. Ypsilon to Stapleton Airport in Denver.

TASK GROUP SESSIONS

Session I: Thursday, 8:30 - 10:00 a.m.

"The value of the planning process and the relevance of the completed master plans for EE."

Key questions to be answered by Subgroups A and B:

1. What are the goals and or purposes of EE master planning? (To what ends does one work in formulating a master plan?)

2. What are some specific purposes and uses of the master plan document once it is completed? (Should an EE Master Plan lean more toward general EE guidelines and recommendations subject to periodic review and updating, or should it be a fairly specific and final blueprint for action that includes specific plans for implementation?)

3. Are the benefits of master planning, both in terms of the document produced and the process of developing it, worth the commitment of time, money, and human resources that are required to do an adequate job?

4. Is master planning something that every state should do?

Refer to questionnaire items 21 A, B, C, D, and E and 4, 6, 7 and 22.

Key questions to be answered by Subgroups C and D:

1. What are the goals of EE master planning? (To what ends does one work in formulating a master plan?)

2. In what ways does the process of formulating a master plan give impetus to the total EE movement in a state?

3. Are the benefits of master planning, both in terms of the document produced and the process of developing it, worth the commitment of time, money, and human resources that are required to do an adequate job?

4. Is master planning something that every state should do?

Refer to questionnaire items 12 A, B, C and D and 4, 6 7 and 22.

Session II: Thursday, 10:15 - 12:00 noon

"The constraints upon the initiation and completion of a master plan for EE."

Key questions to be answered by all Subgroups:

1. What are the constraints encountered in initiating and completing a master plan?
2. How can these constraints be overcome?

Refer to questionnaire items 11 A, B, C and D.

Concurrent Session III: Thursday, 3:15 - 5:15 p.m.

"The roles, responsibilities, and relative importance of different kinds of people, groups, and organizations involved in master planning for EE."

Key questions to be answered by all Subgroups:

1. In what ways are different kinds of people, groups and organizations used in formulating the master plan? (Who should do what when putting the plan together?)
2. What were their roles and responsibilities?
3. What are the relative values of their involvement and how effective was it?

Refer to questionnaire items 9, 14, 16, 18, 19, 20 and 25.

Concurrent Session IV: Thrusday, 3:15 - 5:15 p.m.

"Content of the completed master plan."

Key questions to be answered by all Subgroups:

1. What is the purpose of the master plan document? (To what end is the completed plan used?)
2. What components and elements should the document contain to achieve these purposes?
3. How detailed or thorough should the various components and elements be in the final document?

Concurrent Session V: Friday, 8:15 - 10:00 a.m.

"The roles, responsibilities and relative importance of different kinds of people, groups, and organizations involved in implementing the EE master plan."

Key questions to be answered by all Subgroups:

1. Who should provide the leadership and support roles for implementation?
2. Are these different than in the formulative stages of master planning? How?
3. What are specific roles and responsibilities that should be assumed by each?
4. Given limited funding, how do you best effect assumption of these roles and responsibilities?

Refer to questionnaire items 29, 30 and 34.

Concurrent Session VI: Friday, 8:15 - 10:00 a.m.

"Defining master plan success -- what is it, what outcome priorities should be established?"

Key questions to be answered by all Subgroups:

1. What evidence are you willing to accept that a master plan and its formulation are beneficial to progress of EE and to the development and improvement of specific EE activities?
2. What specific examples can you cite of such benefits and improvements?
3. What program recommendations, in order of general priority, should master plan documents include for implementation?
4. How and why were these program areas chosen?

Refer to questionnaire items 24 and 27.

GENERAL ASSEMBLY DISCUSSIONS

Friday there will be two general assembly discussions involving all conference participants. The 10:30 a.m. discussion will center on:

"Master plan evaluation -- the evidence of success in approach as well as outcomes."

Key questions to be addressed include:

1. Is there a relationship between the process through which a master plan is developed and the likelihood of its implementation?
2. If you had it all to do again what would you do differently?
3. In the final analysis, what is the value of master planning in the light of tangible results?

At 1:15 p.m. the topic of discussion will be:

"The means for funding and the use of other resources in implementing master plans."

Key questions to be considered during this general assembly discussion include:

1. What is funding? Is it only hard cash or is it other resources as well?
2. How can resources, including funding, best be secured?
3. What success have states had in gaining funding and how was this success achieved?

Refer to questionnaire items 31, 32 and 33.

FREE UNIVERSITY SEMINAR SESSIONS

During the evening on Thursday and the afternoon on Friday there will be a series of Free University seminar sessions. Each of these sessions will be directed toward a specific topic which was indicated by the questionnaires to be of particular interest to the participants.

The two Free University sessions on Thursday night will run concurrently with each other and with the meeting of the National Advisory Council. The three sessions of Friday afternoon will also run concurrently.

At each session there will be a panel of people, drawn from among the participants and from outside as well. The panel members will make a short presentation and the session will then be open for question and answer discussions.

Each participant is free to choose which session he or she would like to attend. An orientation to the sessions and announcement of the location of each meeting will occur prior to the start of the sessions in Dick Hall.

At each session someone is needed to prepare a short outline summary of the proceedings and put this report on a "ditto" master. The ditto master should be turned into a member of the conference staff so it can be duplicated and circulated to all of the participants.

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May 16-19, 1973

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Appendix E

DEFINITIONS OF ENVIRONMENTAL EDUCATION

There exists a nearly endless list of definitions and descriptions of Environmental Education. It is hoped that the following, in addition to those mentioned in the text, will serve to establish some parameters and to help the reader get started on his own definition or description. Another helpful source are the State Master Plan documents themselves. While some adopted definitions or descriptions prepared by others, most made at least one attempt to provide a unique description.

The following selections represent a variety of interpretations of what Environmental Education is:

> Environmental Education in Colorado is that education which:
>
> - studies the interdependencies between man and other living and non-living elements of his environment;
> - promotes an understanding of the capability of individuals to significantly alter their life-support system, both positively and negatively, and therefore illustrates the need for them to assimilate values and attitudes that are conducive to the maintenance of a quality environment;
> - emphasizes that there are no simple solutions to complex environmental problems, that trade-offs are involved in all decisions, and that the socio-economic effects of all corrective actions must be properly accounted for before such actions are taken;
> - makes accurate environmental information that presents all sides of environmental issues avialable to individuals so that they can rationally decide for themselves their own positions;
> - teaches the skills needed to properly identify environmental problems and to intelligently work toward their solutions;
> - provides real-life learning experiences for the individual in a variety of learning environments other than lectures;
> - is part of all academic disciplines rather than a course in itself;
> - furnishes information about activities through which individuals can become personally involved in improving environmental conditions.
>
> \- Colorado Interim Master Plan for Environmental Education

Environmental education recognizes that man is one among many organisms in the ecological system -- a part of nature and not separate from it. Environmental education is a process of developing concepts, attitudes, values and actions fostering harmony in man's relationship to his surroundings. And it includes social, political, cultural, economic and aesthetic systems as relevant members of the ecology.

- Wisconsin Environmental Education Council

Environmental Education is --

A new approach to teaching about man's relationship to his environment -- how he affects and is affected by the world around him;

An integrated process dealing with man's natural and man-made surroundings;

Experience-based learning, using the total human, natural, and physical resources of the school and surrounding community as an educational laboratory;

An interdisciplinary approach that relates all subject to a whole-earth "oneness of purpose";

Directed toward survival in an urban society;

Life-centered and oriented toward community development;

An approach for developing self-reliance in responsible, motivated members of society;

A rational process to improve the quality of life;

Geared toward developing behavior patterns that will endure throughout life.

- Office of Environmental Education, USOE

The aim of Environmental Education is to make use of the wealth of human and physical resources in every community which can reinforce and contribute to the learning process...to add understanding to the students' awareness of the variety and complexity of life around them...and, above all, to make the educational process relevant to the students needs, both immediate and future.

- Edward J. Ambry

What are the specific tasks to be assigned to this new environmental/ecological education? They can be summed up briefly: awareness, concern, motivation and training.

Awareness of how we and our technology affect and are affected by our environment.

Concern for man's new and unique responsibility to re-establish and to create beneficially balanced relationships among all forms of life within the closed earth system.

Motivation and training to enable us to acquire and spread the knowledge and skills that will help us solve interrelated environmental problems and prevent their future occurrence.

- James E. Allen, Jr.

Environmental Education seems to create a concern for all environment that leads to a commitment to preserve or develop optimum environment, and to improve less desirable environments. In addition, Environmental Education concerns itself with the learning environment; it seeks a commitment by educators to develop and utilize situations and conditions where learning can flourish.

- V. Eugene Vivian

Environmental Education is defined as that education which deals comprehensively with both human resources and conditions and natural resources and conditions...and their relation to each other -- in other words, the total environment.

- Somerset County Park Commission

The process by which individuals are made more knowledgeable of the natural and man-made systems which support and affect the existence of life-forms. Essential to environmental education is the identification of problems and the exploration of alternative solutions.

- Engineering Institutes, College of Engineering, The University of Texas at Austin and the Texas Education Agency, Research Office, MIC

Definition (read down)	Refinements
Environmental Education	
is a learning process →	the process should be: continuous (life long) humanistic inquiry oriented interdisciplinary
which concerns itself with four equally important divisions of the world, namely	
abiotic (non-living), →	sun, air, water, land (mineral resources)
biotic (living), →	plants and animals
man, →	physical, emotional, intellectual, spiritual
culture, →	the products of man's intellect: governments, laws, economics, housing, services, industry, education, arts, recreation, transportation, mass communication, utilities,
and their interrelatedness; →	a change in any part of any division affects the other divisions,
producing growth in the person →	the growth process will: (goals) increase the commitment to active participation in society clarify values encourage harmonious life styles increase knowledge sharpen esthetic appreciation increase understanding develop learning skills encourage creativity
and leading to responsible stewardship of the earth.	

- Pennsylvania Environmental Education Advisory Council (1973)

By way of contrast, here is an interesting and useful attempt to describe what Environmental Education is not:

> The consensus is that environmental education is not --
>
> Conservation, outdoor resource management, or nature study (although these may be included in an environmental education program);
>
> A cumbersome new program requiring vast outlays of capital and operating funds;
>
> A self-contained course to be added to the already overcrowded curriculum;
>
> Merely getting out of the classroom.

- Places for Environmental Education, a report issued by Educational Facilities Laboratories

Appendix F

UNOBTRUSIVE MEASUREMENT

Unobtrusive measures are intended to allow for collection of data without impinging or intruding upon the people associated with the situation. This approach precludes the necessity to assemble a sample population and eliminates any bias that might result from the sample taken or the survey instrument (usually a questionnaire) used. It also minimizes effects in members of the associated population because they are not directly affected and may, in fact, be unaware that any study is being conducted.

This measurement method is therefore a more direct observation of situations and conditions than the attitude/opinion approach. It attempts to measure conditions directly, rather than measuring how people think conditions are. Examples for environmental education might be the following:

Unobtrusive Measure	Attitude Measure
• Number of people who actually purchase a pollution control device for their automobile.	• Number of people who believe there should be pollution control devices on their automobiles.
• Number of pieces of legislation actually enacted regulating land use.	• Number of people who express a belief in land use regulation.

Not a great deal has been done to date with unobtrusive measures, but this method is becoming more widely used as it becomes better known and as program people look for new ways to measure outcomes of their efforts.

The best and most comprehensive reference in this new field is:

Webb, Eugene J., Campbell, Donald T., Schwartz, Richard D., and Sechrest, Lee; Unobtrusive Measures: Nonreactive Research in the Social Sciences. Chicago: Rand McNally & Co. Eighth printing, 1972.

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Appendix G

FORMS AND FORMAT FOR GATHERING INFORMATION ABOUT NEEDS, RESOURCES AND SERVICES

To illustrate various forms and format for collecting information about needs, resources, and services, three sources were chosen: The Tennessee Valley Authority and the Texas and Colorado Master Plan projects. These groups were especially concerned about this element of planning as they had responsibility for on-going clearinghouse functions as well as for the formulation of a master plan. The three groups used different approaches to dealing with needs, both in terms of substance and in terms of form and format; presenting them here serves two purposes: To provide a sample from which the reader can select and to illustrate the range and variety of needs with which planners have had to deal.

Needs Alone

The Environmental Education Needs section of the Colorado Interim Master Plan (April 1972, pp. 15-24) should be regarded as the most important part of that document in that it sets forth what Colorado citizens think must be done if Environmental Education is to make a difference.

The following are summary statements of the Environmental Education needs identified:

- Understanding and acceptance of Environmental Education as a dynamic process which involves individuals in decision making about their own education and which leads them to take personal actions to solve environmental problems.
- Participative planning as the first step in carrying out Environmental Education programs and activities.
- Convincing those groups and individuals who have influence with particular constituencies of the need for EE.
- Financial support for implementing Environmental Education programs and activities.
- Improved communication, cooperation, and coordination among the various private and public entities within the state working in Environmental Education.
- Availability of and easy access to accurate environmental information that presents all sides of environmental issues.
- Wider, more effective utilization of the mass media (television, radio, newspapers, etc.) in Environmental Education efforts.

- Training in both content and methodology for those engaged in planning, implementing, and evaluating Environmental Education efforts in both the formal and non-formal educational spheres.
- Mechanisms designed to enable the assignment and assumption of specific organizational roles and responsibilities for promoting, assisting, and carrying out Environmental Education programs and activities within the state.
- Evaluation of all Environmental Education efforts undertaken in Colorado in order to make them accountable to their sponsors, participants, and the general public.
- A comprehensive statement of overall Environmental Education goals for the state.

The following set of need statements was developed by Jonathan Wert, Education Relations Officer (Environmental Education) for the Tennessee Valley Authority. The list was prepared in view of the environmental concerns he had determined (see Appendix H) and is presented in priority order.

To make an environmental education program for the Tennessee Valley Authority operational, there is a need for

- a central office or planning unit
- leadership
- coordination of efforts
- improved communications between environmental education efforts
- plans of action showing what needs to be done, how to do it, and the resources available
- technical assistance
- training programs for nongovernment and government personnel
- programs utilizing the mass media
- accessible information about environmental problems and conditions both now and projected for the future
- accessible information about environmental education programs, activities, methods, materials, etc.
- accessible information describing the baseline condition of the environment in the Tennessee Valley region
- accessible information which periodically updates the information about the conditions of the environment in the Tennessee Valley

- curriculum, audio-visual, and other enrichment material
- programs for community members to work toward achieving the environmental education goals, using approaches consistent with the TVA definition of environmental education
- academic and intern programs
- research and development which provide a balanced set of judgments and projections of future environmental conditions based on various sets of interrelated environmental problems
- fund raising efforts for environmental education
- facilities and expertise which enable individuals and groups to conduct research and development to find solutions to environmental problems consistent with the view of the future desirable environmental conditions
- identification or production of evaluation instruments which are used to determine program effectiveness
- utilization of evaluation results to determine program effectiveness and to make any appropriate modification and adjustments to the program.

Needs and Resources Together

The Texas planners took a different approach to the organization and collection of needs. Their forms and format included both needs and resources. They used one set of forms for collecting information from public schools and a different set for collecting information from those operating adult (non-formal) education programs.

Although the resources aspect of these forms is not a great deal different, the list of needs with which they worked were, as you will see, quite different from either Colorado or TVA. To maintain the integrity of these forms, they are included in toto at the end of this appendix.

Resources and Services in Terms of Present Activities

An important aspect of any planning endeavor is the inventory of existing services and resources and an assessment of the interests of those likely to be responsible in the future for implementing various program elements. It is particularly important that this phase of the planning not be done by "ivory tower experts." Those actually rendering services, and those likely to be responsible for doing so, should be the people questioned.

Jon Wert has developed the following listing of services and questionnaire format for use in getting information from TVA offices and divisions.

Services by Categories

Technical Assistance	Are Doing*	Are Interested In Doing*
Participation in community action projects, recycling centers, etc.	___	___
Preparation of master plan or workplans	___	___
Preparation of grant proposals	___	___
Preparation of plans for educational facilities, i.e., school sites, environmental study areas	___	___
Preparation of legislation, rules, and regulations	___	___
Preparation and selection of learning material, i.e., books, films, etc.	___	___
Planning, organizing, and participating in workshops, conferences, seminars, etc.	___	___
Designing programs for pre-service and in-service education at the higher education level	___	___
Designing specific environmental education learning activities, research projects, etc.	___	___
Development of communications and cooperative working relationships with educational institutions, agencies, organizations, and groups concerned with environmental education	___	___
Development of curriculum, audio-visual aids, exhibits, etc.	___	___
Review and evaluation of material and programs	___	___
Identification and recommended use of appropriate resource people	___	___
Participation on advisory committees, councils, etc.	___	___
Others	___	___

Environmental Data, Information, and Education Material	Are Doing*	Are Interested In Doing*
Provision of environmental data, information, and education material about your own in-house programs or projects	___	___
Provision of environmental data, information, and educational material about programs or projects external to your agency or organization	___	___
Provision of instructional material or learning packets and audio-visual aids on energy, minerals, land use, etc.	___	___
Others	___	___

Financial Assistance	Are Doing*	Are Interested In Doing*
Funding of educational demonstrations and unique projects	___	___
Funding of research projects	___	___
Others	___	___

Specific In-House Programs, Projects, or Activities	Are Doing*	Are Interested In Doing*
Production of specific material which explains in-house programs	___	___
Provision of lands for environmental studies	___	___
Provision for programs, tours of power plants, dam sites, etc.	___	___
Provision of clearinghouse services	___	___
Provision for intern opportunities in environmental fields	___	___
Planning and conducting workshops for users of facilities	___	___

Planning and conducting training programs and/or workshops for employees	___	___
Planning and conducting conferences aimed at specific target groups, i.e., air quality, energy, etc.	___	___
Operation of day use program	___	___
Operation of resident program	___	___
Operation of mobile environmental education laboratory	___	___
Operation of monitoring systems	___	___
Operation of environmental research program	___	___
Others	___	___

---

*1 = a little; 2 = a fair amount; and 3 = a lot

NOTE: Each questionnaire includes (1) space for the respondent to place his or her name, profession, and address; (2) the definition of environmental education for purposes of the needs assessment and resource inventory; and (3) special directions for completing the questionnaire.

The Resource Inventory as a Basis for Program Implementation

This resource inventory differs from the previous one in that it is much more specific in content and purpose. This one asks a set of very detailed questions about resources needed specifically useful for the implementation of the program elements and the meeting of program goals. A resource inventory form, specifically geared to a program or program element, is sent to as many people as possible who may have or be aware of applicable resources.

The following program-specific resource inventory form was developed by Jon Wert for use at TVA:

RESOURCE INVENTORY QUESTIONS

The title of the program, program element, or group of program elements for which one is seeking resource information is written here.

1. Do you have any personnel who can perform environmental education program services? If so, who are the personnel? What are the services and for whom are they provided? When were they first provided? Where are they provided? Why are they provided? How can they be obtained? At what cost?

2. Do you have financial resources for funding environmental education demonstrations, unique programs, or projects? If so, what are the funds to be used for? When were the funds first provided? Where are projects funded? Why are funds provided? Who has responsibility for these resources?

3. Do you have any environmental education audio-visual aids, equipment, or other material? If so, what are they? When were they prepared? Where are they? Why were they prepared? Who has responsibility for this equipment and material?

4. Do you have any sites or facilities which can be used for conducting environmental education meetings, environmental investigations/studies, or research? If so, what are they? When were they developed? Where are they? Why were they developed? Who has the responsibility for thse sites or facilities? At what cost?

NOTE: Each questionnaire includes (1) space for the respondent to place his or her name, profession, and address; (2) the definition of environmental education for purposes of the needs assessment and resource inventory; and (3) special directions for completing the questionnaire.

Resource Inventory and Cataloguing Scheme for Use In Building a State or Local Resources Access/Referral System

The collection of resource information is important to a clearinghouse. During the period devoted to planning, and in some cases extending beyond that, planning groups have assumed responsibility for the collection, storage, retrieval and dissemination of information about resources. This was true in Colorado; although aside from their own staff and some specific technical resources, they were a clearinghouse providing, as they called it, "access to access."

To build the system and to make it function, the Colorado planning staff developed the two forms shown at the end of this appendix. The Resources Inventory Data Sheet was attached to the back of the State Planning Newsletter with instructions for filling it out. The paper entitled Interim Guide to the Resource File is the instrument used to catalogue information and to cross-reference requests for help.

ENGINEERING INSTITUTES
COLLEGE OF ENGINEERING
THE UNIVERSITY OF TEXAS AT AUSTIN

ADULT ENVIRONMENTAL EDUCATION NEEDS AND RESOURCES IN TEXAS

SURVEY OF GOVERNMENTAL AGENCIES AND OFFICIALS, ENVIRONMENTAL GROUPS, BUSINESS AND INDUSTRY

For the purpose of this survey, "environmental education" shall be defined as follows:

> "The process by which individuals are made more knowledgeable of the natural and man-made systems which support and affect the existence of life-forms. Essential to environmental education is the identification of problems and the exploration of alternative solutions."

Environmental education resources are personnel, methods, and tools used in promoting an individual's personal awareness of man's relationship to the world around him and his response to it.

1. To help us identify the content level and depth of environmental education material, please estimate the approximate number of your personnel in the categories indicated who now use/produce/need environmental education material. (Circle one answer for each item a. through d.)

	Number of Personnel Using/Producing/Needing Environmental Education Resources					
a. Managers or administrators	none	1-5	6-19	20-79	80-200	200 or more
b. Professional, technical, etc.	none	1-5	6-19	20-79	80-200	200 or more
c. Volunteer Members	none	1-5	6-19	20-79	80-200	200 or more
d. Others	none	1-5	6-19	20-79	80-200	200 or more

2. For each of the following environmental areas, please indicate by circling yes or no whether or not your organizational unit(s) produces, will produce, uses, or needs more PRINTED MATERIAL RESOURCES (books, journals, articles, lab manuals, technical reports, periodicals, posters, etc.) for Environmental Education.

PRINTED MATERIAL RESOURCES *(Please respond in each square)* **AREAS**	**Produces**	**Will Produce This Year**	**Uses**	**Needs More**
AIR POLLUTION	Yes No	Yes No	Yes No	Yes No
ECONOMICS	Yes No	Yes No	Yes No	Yes No
ENERGY	Yes No	Yes No	Yes No	Yes No
GOVERNMENTAL LEGAL STRUCTURES	Yes No	Yes No	Yes No	Yes No
HEALTH HAZARDS (industrial hygiene, unsanitary food, radiation, disease, etc.)	Yes No	Yes No	Yes No	Yes No
LAND-USE PLANNING (management of coastal development, zoning, natural disasters, flood plains, highway routing, etc.)	Yes No	Yes No	Yes No	Yes No
NATURAL RESOURCES (forestry, resource availability & allocation, water utilization, wildlife management, recreational facilities, etc.)	Yes No	Yes No	Yes No	Yes No
NOISE POLLUTION	Yes No	Yes No	Yes No	Yes No
POPULATION PROBLEMS	Yes No	Yes No	Yes No	Yes No
PROBLEMS OF URBANIZATION (overcrowding, crime, drug abuse, racial discord, etc.)	Yes No	Yes No	Yes No	Yes No
RESOURCE RECYCLING	Yes No	Yes No	Yes No	Yes No
SOLID WASTE (INCL. LITTER)	Yes No	Yes No	Yes No	Yes No
TRANSPORTATION ALTERNATIVES	Yes No	Yes No	Yes No	Yes No
WATER POLLUTION	Yes No	Yes No	Yes No	Yes No
OTHER (SPECIFY)	Yes No	Yes No	Yes No	Yes No

3. For each of the following environmental areas, please indicate by circling yes or no whether or not your organizational unit(s) produces, will produce, uses, or needs more AUDIO-VISUAL RESOURCES (movies, video tapes, slides, film strips, pictures, photographs, records, tapes, etc.) for Environmental Education.

AUDIO-VISUAL RESOURCES *(Please respond in each square)* **AREAS**	**Produces**	**Will Produce This Year**	**Uses**	**Needs More**
AIR POLLUTION	Yes No	Yes No	Yes No	Yes No
ECONOMICS	Yes No	Yes No	Yes No	Yes No
ENERGY	Yes No	Yes No	Yes No	Yes No
GOVERNMENTAL LEGAL STRUCTURES	Yes No	Yes No	Yes No	Yes No
HEALTH HAZARDS (industrial hygiene, unsanitary food, radiation, disease, etc.)	Yes No	Yes No	Yes No	Yes No
LAND-USE PLANNING (management of coastal development, zoning, natural disasters, flood plains, highway routing, etc.)	Yes No	Yes No	Yes No	Yes No
NATURAL RESOURCES (forestry, resource availability & allocation, water utilization, wildlife management, recreational facilities, etc.)	Yes No	Yes No	Yes No	Yes No
NOISE POLLUTION	Yes No	Yes No	Yes No	Yes No
POPULATION PROBLEMS	Yes No	Yes No	Yes No	Yes No
PROBLEMS OF URBANIZATION (overcrowding, crime, drug abuse, racial discord, etc.)	Yes No	Yes No	Yes No	Yes No
RESOURCE RECYCLING	Yes No	Yes No	Yes No	Yes No
SOLID WASTE (INCL. LITTER)	Yes No	Yes No	Yes No	Yes No
TRANSPORTATION ALTERNATIVES	Yes No	Yes No	Yes No	Yes No
WATER POLLUTION	Yes No	Yes No	Yes No	Yes No
OTHER (SPECIFY)	Yes No	Yes No	Yes No	Yes No

4. For each of the following environmental areas, please indicate by circling yes or no whether or not your organizational unit(s) produces, will produce, uses, or needs more HUMAN RESOURCES (consultants, speakers, etc.) for Environmental Education.

HUMAN RESOURCES *(Please respond in each square)* **AREAS**	**Produces**		**Will Produce This Year**		**Uses**		**Needs More**	
AIR POLLUTION	Yes	No	Yes	No	Yes	No	Yes	No
ECONOMICS	Yes	No	Yes	No	Yes	No	Yes	No
ENERGY	Yes	No	Yes	No	Yes	No	Yes	No
GOVERNMENTAL LEGAL STRUCTURES	Yes	No	Yes	No	Yes	No	Yes	No
HEALTH HAZARDS (industrial hygiene, unsanitary food, radiation, disease, etc.)	Yes	No	Yes	No	Yes	No	Yes	No
LAND-USE PLANNING (management of coastal development, zoning, natural disasters, flood plains, highway routing, etc.)	Yes	No	Yes	No	Yes	No	Yes	No
NATURAL RESOURCES (forestry, resource availability & allocation, water utilization, wildlife management, recreational facilities, etc.)	Yes	No	Yes	No	Yes	No	Yes	No
NOISE POLLUTION	Yes	No	Yes	No	Yes	No	Yes	No
POPULATION PROBLEMS	Yes	No	Yes	No	Yes	No	Yes	No
PROBLEMS OF URBANIZATION (overcrowding, crime, drug abuse, racial discord, etc.)	Yes	No	Yes	No	Yes	No	Yes	No
RESOURCE RECYCLING	Yes	No	Yes	No	Yes	No	Yes	No
SOLID WASTE (INCL. LITTER)	Yes	No	Yes	No	Yes	No	Yes	No
TRANSPORTATION ALTERNATIVES	Yes	No	Yes	No	Yes	No	Yes	No
WATER POLLUTION	Yes	No	Yes	No	Yes	No	Yes	No
OTHER (SPECIFY)	Yes	No	Yes	No	Yes	No	Yes	No

5. For each of the following environmental areas, please indicate by circling yes or no whether or not your organizational unit(s) produces, will produce, uses, or needs more ON-THE-JOB LEARNING RESOURCES (on-the-job training, field trips, simulation instruction, etc.) for Environmental Education.

ON-THE-JOB LEARNING *(Please respond in each square)* **AREAS**	**Produces**		**Will Produce This Year**		**Uses**		**Needs More**	
AIR POLLUTION	Yes	No	Yes	No	Yes	No	Yes	No
ECONOMICS	Yes	No	Yes	No	Yes	No	Yes	No
ENERGY	Yes	No	Yes	No	Yes	No	Yes	No
GOVERNMENTAL LEGAL STRUCTURES	Yes	No	Yes	No	Yes	No	Yes	No
HEALTH HAZARDS (industrial hygiene, unsanitary food, radiation, disease, etc.)	Yes	No	Yes	No	Yes	No	Yes	No
LAND-USE PLANNING (management of coastal development, zoning, natural disasters, flood plains, highway routing, etc.)	Yes	No	Yes	No	Yes	No	Yes	No
NATURAL RESOURCES (forestry, resource availability & allocation, water utilization, wildlife management, recreational facilities, etc.)	Yes	No	Yes	No	Yes	No	Yes	No
NOISE POLLUTION	Yes	No	Yes	No	Yes	No	Yes	No
POPULATION PROBLEMS	Yes	No	Yes	No	Yes	No	Yes	No
PROBLEMS OF URBANIZATION (overcrowding, crime, drug abuse, racial discord, etc.)	Yes	No	Yes	No	Yes	No	Yes	No
RESOURCE RECYCLING	Yes	No	Yes	No	Yes	No	Yes	No
SOLID WASTE (INCL. LITTER)	Yes	No	Yes	No	Yes	No	Yes	No
TRANSPORTATION ALTERNATIVES	Yes	No	Yes	No	Yes	No	Yes	No
WATER POLLUTION	Yes	No	Yes	No	Yes	No	Yes	No
OTHER (SPECIFY)	Yes	No	Yes	No	Yes	No	Yes	No

6. Does your organizational unit(s) now use environmental education material produced by the following organizations? (Please circle Yes or No for a through j)

a. In-house resources . . . . Yes No

b. Publishers . . . . Yes No

c. Federal Government . . . . Yes No

d. State and Local Government . . . . Yes No

e. Industrial or Trade Associations . . . . Yes No

f. Industrial or Business Firms . . . . Yes No

g. Environmental Groups or Organizations . . . . Yes No

h. Schools, Colleges, or Universities . . . . Yes No

i. Non-profit Foundations . . . . Yes No

j. Other ____________________ . . . .

7. Should the State of Texas establish a statewide Environmental Education Clearinghouse to help locate and retrieve environmental education resources?

Yes No

8. Name of Organization ____

Address ____

City ____________________ State ____________________ Zip __________

Name of official completing questionnaire ____

Date ____________________ Title ____________________

Thank you for your cooperation. Please put this questionnaire in the post-paid envelope and return it to us by April 6, 1973.

Engineering Institutes
c/o Division of Extension
Box K
College of Engineering
University of Texas
Austin, Texas 78712

FOR OFFICIAL USE

____

TEXAS EDUCATION AGENCY

Research Office, MIC

Environmental Education Resources and Needs Survey for Texas Public Schools

The goal of this survey is to determine the scope of environmental education resources and needs in Texas public schools. Such information will be instrumental in the design and integration of environmental education into public school curricula.

For the purpose of this survey, "environmental education" shall be defined as follows:

> The process by which students are made more knowledgeable of the natural and man-made systems which support and affect the existence of life-forms. Essential to environmental education is the identification of problems and the exploration of alternative solutions.

Environmental education resources are personnel, methods, and tools used in promoting a student's personal awareness of man's relationship to the world around him and his response to it.

Numbers in parentheses are for the purpose of data analysis and should be ignored by the respondent.

1. In the matrix shown below, check(✓)the categories which you feel most accurately evaluate the levels of environmental awareness and concern of your faculty and students. There is a difference between being aware of an issue and being concerned about that issue. A person can be aware and yet not be concerned or vice versa.

	AWARE 1	UNAWARE 2	CONCERNED 1	UNCONCERNED 2
FACULTY (25-26)				
STUDENTS (27-28)				

By March 16, 1973, please return this questionnaire to:

Mr. Jerry T. Barton, Director of Research
Research Office, MIC
201 East 11th Street
Austin, Texas 78701

RES-017

2. On the matrix below, indicate with a check (✓) in the column entitled "ADDITIONAL RESOUR NEEDED" the types of additional environmental education resources which your school needs In the columns entitled "QUALITY OF RESOURCES CURRENTLY AVAILABLE," rate with a check (✓ each of the various resources available to your school on their levels of effectiveness. The rating scale ranges from a value of "1", which denotes "excellent," to a value of "4" which means "worthless." Do not "rate" those resources which are not currently available

FOR TEA USE ONLY	TYPES OF RESOURCES	ADDITIONAL RESOURCES NEEDED (1)	QUALITY OF RESOURCES CURRENTLY AVAILIABLE (2)			
			1	2	3	4
(29-30)	FILMS					
(31-32)	SLIDES					
(33-34)	BOOKS					
(35-36)	POSTERS					
(37-38)	TAPES					
(39-40)	RECORDS					
(41-42)	TELEVISION					
(43-44)	PERIODICALS					
(45-46)	FIELD TRIP FACILITIES					
(47-48)	SPEAKERS					
(49-50)	WORKBOOKS					
(51-52)	OUTDOOR CLASSROOMS					
(53-54)	LAB MANUALS					
(55-56)	TECHNICAL PAPERS AND REPORTS					
(57-58)	HANDOUT MATERIALS					
(59-60)	FACILITIES/SERVICES OF COLLEGES AND UNIVERSITIES					
(61-62)	CONSULTANTS					
(63-64)	ENVIRONMENTAL GAMES, SIMULATIONS					
(65-66)	OTHER (specify)					

3. On the matrix below, indicate with a check (✓) in the column entitled "ADDITIONAL RESOURCES NEEDED" the CONTENT AREAS for which your school needs additional environmental education resources. In the columns under "QUALITY OF RESOURCES AVAILABLE," rate with a check (✓) the quality of the various resources available to your school in each of the CONTENT AREAS with the value of "1" denoting "excellent" and the value of "4" denoting "worthless." Do not rate those resources that are not currently available to your school.

FOR TEA USE ONLY	CONTENT AREAS	ADDITIONAL RESOURCES NEEDED (1)	QUALITY OF RESOURCES CURRENTLY AVAILABLE (2)			
			1	2	3	4
(10-11)	POPULATION PROBLEMS					
(12-13)	POLLUTION (air, water, noise, waste--solid and liquid, soil)					
(14-15)	HEALTH HAZARDS (toxic chemicals, radiation, disease)					
(16-17)	URBAN-RURAL PLANNING (land management, agriculture, construction, zoning)					
(18-19)	TRANSPORTATION ALTERNATIVES					
(20-21)	WILDLIFE					
(22-23)	HISTORICAL PRESERVATION					
(24-25)	ECONOMICS					
(26-27)	RESOURCE DISTRIBUTION AND ALLOCATION (minerals, manpower, food, oceans, forests)					
(28-29)	HEREDITARY ADAPTATIONS					
(30-31)	RECREATION					
(32-33)	AESTHETIC CONSIDERATIONS (arts, outdoor scenery)					
(34-35)	RESOURCE RECYCLING					
(36-37)	WATER UTILIZATION AND STREAM FLOW ALTERATION					
(38-39)	NATURAL DISASTERS					
(40-41)	CLIMATE CHANGES AND MODIFICATIONS					
(42-43)	ENERGY ALTERNATIVES					
(44-45)	GOVERNMENTAL/LEGAL STRUCTURES, SOCIAL CONCERNS					

4. Check(✓)the appropriate categories to indicate the extent of local effort to include environmental education in the public school curriculum.

___(46) Existing courses, such as English, government, economics, biology, and chemistry, have been modified to include environmental education materials, or will be modified and implemented within a year.

___(47) Environmental education courses are currently in operation, or have been planned and will be implemented within a year.

___(48) Environmental education curricula additions are presently under consideration.

___(49) Teacher environmental education workshops are functioning.

___(50) Teacher environmental education workshops are planned.

___(51) Other(s) Specify:____

5. The environmental education resources presently used by your school come from the following[indicate with a check(✓)]:

___(52) Environmental clubs and organizations

___(53) Industrial materials and publications

___(54) Government materials and publications

___(55) Scientific and professional journals

___(56) Educational supply houses and developmental laboratories

___(57) Non-profit foundations, groups, and organizations

___(58) Colleges and universities

___(59) Other schools

___(60) Regional education service centers

___(61) Texas Education Agency

6. Do you feel a statewide environmental education clearinghouse is needed to help educators locate and retrieve environmental education resources?

___Yes
(62)
___No

7. In the matrix below indicate with a check (✓) the level of priority which you feel should be assigned to each of the environmental issues listed under the column entitled ISSUES: Assign a priority of "1" to the most crucial issues and a priority of "4" to the least important.

FOR TEA USE ONLY	ISSUES	PRIORITY			
		1	2	3	4
(10)	AIR POLLUTION				
(11)	WATER POLLUTION				
(12)	NOISE POLLUTION				
(13)	SOLID WASTE POLLUTION				
(14)	RESOURCE RECYCLING				
(15)	POPULATION PROBLEMS				
(16)	RESOURCE AVAILABILITY & ALLOCATION				
(17)	HEALTH HAZARDS				
(18)	URBAN-RURAL PLANNING				
(19)	ENERGY SOURCES				
(20)	TRANSPORTATION ALTERNATIVES				
(21)	WILDLIFE MANAGEMENT				
(22)	HISTORICAL PRESERVATION				
(23)	FORESTRY				
(24)	AESTHETIC CONSIDERATIONS				
(25)	WATER UTILIZATION & STREAM FLOW				
(26)	NATURAL DISASTERS				
(27)	SOCIOLOGICAL CONCERNS				
(28)	CLIMATE CHANGE & MODIFICATION				
(29)	ECONOMICS				
(30)	HEREDITARY ADAPTATIONS				
(31)	RECREATION				
(32)	GOVERNMENTAL/LEGAL STRUCTURES				
(33)	OTHER (SPECIFY)				

The following two questions should be answered by principals only.

---

8. In the space below indicate the number of environmental education courses and the number of school-sponsered environmentally-oriented clubs and organizations presently functioning at your school.

Courses__________ (34-35)

Clubs/Organizations__________ (36-37)

9. Indicate below the number of teachers you have on your school's faculty with special environmental education backgrounds or training.

Teachers__________ (38-39)

ENVIRONMENTAL SPEAKERS RESOURCE LIST

for the

TEXAS ADVISORY COUNCIL ON ENVIRONMENTAL EDUCATION

Name ______________________________ Phone (AC) __________

Address ______________________________

Areas of Environmental Interest and Expertise ______________________________

____

____

____

Background in Environmentally-Oriented Work ______________________________

____

____

____

Affiliations ______________________________

____

Profession ______________________________

Travel Requirements or Restrictions (distance, expenses, etc.) __________

____

____

Type of Presentation and Equipment Needed for Such __________

____

Audience (Check Preference):

Schools __________
Civic Clubs and Organizations __________
Religious Groups __________
Industrial Groups __________

Labor Groups __________
Environmental Groups __________
Do you have any requirements or preferences concerning audience size? __________

I, ______________________________, hereby give the Texas Advisory Council on Environmental Education permission to include my name in their Statewide environmental speakers list, and sanction its distribution to State agencies, schools, private clubs and organizations, religious groups, and other groups interested in environmental education. In so doing, I understand that I am not obligated to accept speaking engagements which I deem undesirable or inconvenient.

RESOURCE INVENTORY

Data Sheet

ILES: ☐ Subject ☐ People ☐ Organizations ☐ Information ☐ Phys.Resources

---

. SUBJECT FILE

10 ☐ AGRICULTURE
20 ☐ AIR POLLUTION
30 ☐ ALTERNATIVE SCHOOLS
40 ☐ BIBLIOGRAPHIES
50 ☐ CONSERVATION
60 ☐ CONSULTANTS
70 ☐ CURRICULUM DESIGN
80 ☐ DIRECTORIES
90 ☐ ENERGY
00 ☐ FILMS
10 ☐ FINANCING
20 ☐ FORESTRY
30 ☐ GAMES & SIMULATIONS
40 ☐ HEALTH
50 ☐ HOUSING
160 ☐ IMPACT STATEMENTS
170 ☐ INFORMATION SYSTEMS
180 ☐ INTERNATIONAL ENVIRONMENT
190 ☐ JOB APPLICANTS
200 ☐ JOB OPPORTUNITIES
210 ☐ JOB SERVICES
220 ☐ KITS
230 ☐ LAND USE
240 ☐ LEGISLATION
250 ☐ MASTER PLANS
260 ☐ MEDIA
270 ☐ MEETING PLACES
280 ☐ MINING
290 ☐ MINORITIES
300 ☐ NOISE CONTROL
310 ☐ OIL SHALE
320 ☐ OPEN SPACE TEACHING
330 ☐ OUT-OF-STATE CONTACTS
340 ☐ OUTDOOR EDUC.
350 ☐ PESTICIDES
360 ☐ PLANNING
370 ☐ POPULATION
380 ☐ PRESENTATIONS
390 ☐ PROJECTS
400 ☐ RADIATION
410 ☐ RECYCLING
420 ☐ REPORTS
430 ☐ RURAL CONTACTS
440 ☐ SITES
450 ☐ SPEAKERS
460 ☐ STUDY GUIDES
470 ☐ SUPPLIES
480 ☐ TEACHER TRNG.
490 ☐ TEACHERS
500 ☐ TESTS, MEASUREMENT
510 ☐ TRANSPORTATION
520 ☐ VOLUNTEERS
530 ☐ WATER POLLUTION
540 ☐ WATER USE
550 ☐ WEATHER MODIFICATION
560 ☐ WILDERNESS
570 ☐ YOUTH
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I. PEOPLE

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Role in EE ______________________________

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Phone, bus., home ______________________________
Role in EE ______________________________

III. ORGANIZATIONS

Name
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Description

Name
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City, State, Zip
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Name
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City, State, Zip
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Description

Name
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City, State, Zip
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Description

IV. INFORMATION RESOURCES

Title
Author
Type
Description

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Description

Title
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Author
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V. PHYSICAL RESOURCES

Title
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Description

INTERIM GUIDE TO THE RESOURCE FILE

ORMAT OF THE RESOURCE FILE

he only subdivision within the five sections of cards is this: U. S. Government agencies nd projects are grouped together under UNITED STATES. This is done because agencies may be ariously known -- e.g., US Park Service or Natl Park Service or Park Service, etc.

ubject headings are designated by a number and full caps: 160 IMPACT STATEMENTS

ross-reference listings which are not subject headings are designated in lower case, iniial caps only: Environmental Impact Statements See 160 IMPACT STATEMENTS

hen a subject heading has been changed, the subject file has been changed as follows:

1. Old entries have a note telling you where new entries are.
2. New subject headings have a card with a note telling you where old entries are.

UBJECT HEADINGS AND Cross Reference Titles

ffective Domain
  See 500 TESTS,MEASUREMENT
    480 TEACHER TRAINING
10 AGRICULTURE
20 AIR POLLUTION
30 ALTERNATIVE SCHOOLS
40 BIBLIOGRAPHIES
learinghouse
  See INFORMATION SYSTEMS (170)
ommunications, Media
  See MEDIA (260)
50 CONSERVATION
60 CONSULTANTS
ontributions, in-kind, free
  See CONSULTANTS (060)
    MEETING PLACES (270)
    SUPPLIES (470)
    TRANSPORTATION (510)
    VOLUNTEERS (520)
70 CURRICULUM DESIGN
80 DIRECTORIES
ducation, Environmental
  See CURRICULUM DESIGN (070)
    FINANCING (110)
    MASTER PLANS (250)
    SITES (440)
    TEACHERS (490)
ducation, Innovative
  See ALTERNATIVE SCHOOLS (030)
    OPEN SPACE TEACHING (120)
ducation, Tools
  See BIBLIOGRAPHIES (040)
    DIRECTORIES (080)
    FILMS (100)
    GAMES & SIMULATIONS (130)
    KITS (220)
    PRESENTATIONS (380)
    SPEAKERS (450)
    STUDY GUIDES (460)
0 ENERGY
0 FILMS
0 FINANCING
0 FORESTRY

130 GAMES AND SIMULATIONS
Government
  See LEGISLATION (240)
140 HEALTH
150 HOUSING
160 IMPACT STATEMENTS
170 INFORMATION SYSTEMS
180 INTERNATL. ENVIRONM.
190 JOB APPLICANTS
200 JOB OPPORTUNITIES
210 JOB SERVICES
220 KITS
230 LAND USE
Law
  See 240 LEGISLATION
240 LEGISLATION
250 MASTER PLANS
Measurements
  See TESTS, MEASUREMENTS
260 MEDIA
270 MEETING PLACES
280 MINING
290 MINORITIES
Newspapers
  See 260 MEDIA
300 NOISE CONTROL
Nuclear Blasts
  See 400RADIATION
310 OIL SHALE
320 OPEN SPACE TCHG.
330 OUT-OF-STATE CONTACTS
340 OUTDOOR EDUCATION
350 PESTICIDES
360 PLANNING
370 POPULATION
380 PRESENTATIONS
Press
  See MEDIA (2[illegible])
Programs
  See PROJECTS ([illegible])
390 PROJECTS

400 RADIATION
Radio
  See 260 MEDIA
410 RECYCLING
Reclamation
  See CONSERVATION
420 REPORTS
Restoration
  See 050 CONSERVATION
430 RURAL CONTACTS
Simulations
  See 130 GAMES & SIMULATIONS
440 SITES
450 SPEAKERS
460 STUDY GUIDES
470 SUPPLIES
480 TEACHER TRAINING
490 TEACHERS
Television
  See 260 MEDIA
500 TESTS, MEASUREMENT
Tools
  See 040 BIBLIOGRAPHIES
    080 DIRECTORIES
    100 FILMS
    130 GAMES & SIMULATIONS
    220 KITS
    380 PRESENTATIONS
    460 STUDY GUIDES
510 TRANSPORTATION
Underground Blasts
  See 400 RADIATION
520 VOLUNTEERS
530 WATER POLLUTION
540 WATER USE
550 WEATHER MODIFICATION
560 WILDERNESS
570 YOUTH

Appendix H

ORGANIZATIONAL SCHEMES FOR ENVIRONMENTAL PROBLEMS

Whether one collects information about environmental problems and conditions from "experts," from written reports and government files, or from the general public, some scheme will be required for organizing and presenting the information. Further, if one uses the method of rank ordering problems in order to determine environmental concerns, an organizational scheme is imperative.

Four such schemes are included here. The first, taken from the preliminary work being done by Jon Wert at the Tennessee Valley Authority, presents a brief general organizational scheme. The second is a 23-item list of environmental problems used by the state planners in Texas. The third presents the results of the Colorado planners' work in organizing and listing the range of environmental problems relative to that state. The fourth is an organizational scheme based on a conceptual framework for determining environmental impact, prepared by Paul Cromwell and Tish Davis of the Office of Environmental Affairs, Office of Education, U. S. Department of Health, Education and Welfare.

It is hoped that, no matter what approach is used to collect the information, these schemes and the lists of problems incorporated in them will be helpful as a point of departure for the task and/or framework for organizing the results.

ENVIRONMENTAL CONCERNS FOR TENNESSEE VALLEY AUTHORITY

Based upon the recent interviews with directors of TVA offices and divisions, the following list of environmental concerns was developed.

Economic-Social-Cultural-Problems -- This includes such things as problem solving leadership, human psychological needs, social and work environment, housing, job opportunities, levels of income, and the like.

Health Hazards -- This includes such things as air and water pollution, various toxic materials, food additives, noise, and the like.

Energy Problems -- This includes such things as the basic shortage of fuel, lack of development of new reserves, and the inefficient use of our present supply.

Population Problems -- This includes such things as size, distribution, and demand on resources.

Resource Depletion -- This includes such things as inadequate management of renewable and nonrenewable resources.

Natural Environment -- This includes such things as loss of natural habitat and endangered plant and animal species.

There is a variety of other categories which also are of importance. These include planning, design, and construction problems; water and air problems; land use problems; transportation problems; materialism; and aesthetic problems.

ENVIRONMENTAL ISSUES

A Check List for Determining Priorities of Environmental Issues

Texas Education Agency

FOR TEA USE ONLY	ISSUES	PRIORITY			
		1	2	3	4
(10)	AIR POLLUTION				
(11)	WATER POLLUTION				
(12)	NOISE POLLUTION				
(13)	SOLID WASTE POLLUTION				
(14)	RESOURCE RECYCLING				
(15)	POPULATION PROBLEMS				
(16)	RESOURCE AVAILABILITY & ALLOCATION				
(17)	HEALTH HAZARDS				
(18)	URBAN-RURAL PLANNING				
(19)	ENERGY SOURCES				
(20)	TRANSPORTATION ALTERNATIVES				
(21)	WILDLIFE MANAGEMENT				
(22)	HISTORICAL PRESERVATION				
(23)	FORESTRY				
(24)	AESTHETIC CONSIDERATIONS				
(25)	WATER UTILIZATION & STREAM FLOW				
(26)	NATURAL DISASTERS				
(27)	SOCIOLOGICAL CONCERNS				
(28)	CLIMATE CHANGE & MODIFICATION				
(29)	ECONOMICS				
(30)	HEREDITARY ADAPTATIONS				
(31)	RECREATION				
(32)	GOVERNMENTAL/LEGAL STRUCTURES				
(33)	OTHER (SPECIFY)				

COLORADO ENVIRONMENTAL PROBLEMS*

Environmental Problems Referred to by Both Rural & Urban Residents

Land-use planning, water utilization, and economic stagnation were viewed by most rural Master Planning participants as their most serious environmental problems. Air pollution and population pressures on the Front Range were, in the minds of most urban planning participants, the two principal threats to environmental quality. In spite of their different perspectives, many environmental problems were referred to by both groups. Following is a list of common problem areas:

- Water Problems
  - Inadequate sewage treatment
  - Garbage and litter in waterways
  - Little water-use planning
- Land Problems
  - Inadequate zoning and land-use planning
  - Solid waste disposal
  - Litter and visual blight
  - General depletion of natural resources
  - Oil shale development
- Air Problems
  - Industrial and power plant emissions
  - Odors (feedlots, rendering plants, smog, etc.)
  - Automotive and truck emissions
- Environmental and Economic Impact of the Olympic Games
- Health Hazards of Air and Water Pollution, Radiation, Pesticides, Noise, Etc.
- Materialistic Life-Styles

Environmental Problems Referred to Primarily by Rural Residents

The following environmental problems were cited almost exclusively by rural planning participants.

- Water Problems
  - Transmountain, transbasin diversion and downstream commitment
  - Salinization as a result of irrigation
  - Feedlot and fertilizer run-off

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*Colorado Interim Master Plan for Environmental Education, April 1972, pp. 11-14.

  - Acid from mine drainage
  - Sedimentation
  - Surface and ground water contamination
  - Over-appropriation of water sources

- Land Problems
  - Restrictions on economic utilization
  - Mining operations
  - Erosion, blowing of topsoil

- Economic Problems
  - Lack of rural job opportunities
  - Discriminatory freight rates
  - Lack of adequate housing
  - Increasing costs of farming and ranching
  - Inadequate return on farming and ranching investment
  - Low taxation bases and property taxes as the major source of economic revenue
  - Need for highway construction and improvement and for Front Range access
  - Predator control
  - Agricultural marketing

- Human Problems
  - Loss of young people to urban areas
  - Lack of rural-urban cooperation and dialogue
  - Loss of rural political strength
  - Lack of leadership in the various environmental problem areas

Environmental Problems Referred to Primarily by Urban Residents

The following environmental problems were cited almost exclusively by urban planning participants.

- Water Problems
  - Industrial and factory effluent
  - Sale of water by Denver to suburban areas

- Land Problems
  - Need for parks and open space

- Air Problems
  - Vehicular emissions

- Transporation
  - Vehicle congestion
  - Proposed parking garages
  - Lack of adequate mass transit system
  - Highway construction

- Over-Population of the Front Range
- Low Income and Minority Housing, Jobs and Health, and the Loss of Cultural Identity
- Work Environment of Laborers and Factory Employees

Environmental Problems Not Widely Discussed

The following environmental problems were cited only occasionally in meetings with rural and urban planning participants.

- Environment as a World-Wide Crisis
  - Global implication of over-population
  - The U. S., with 6% of the world's population, consumes 1/3 to 1/2 the annual world output of non-renewable natural resources
  - Ocean dumping
- Economic Impact of Urban Environmental Problems and the Higher Cost of Control
- Lack of Sufficient Concern and Efforts to Find Substitutes for Non-Renewable Energy Resources
- Food Preservatives and Chemicals
- Multiple-Use Concept (Public Land vs. Private Land)
- Administrative Disposition and Use of Public Lands
- Loss of Land to Urbanization and Other Non-Agricultural Uses
- Uncontrolled Dispersal of Population in Rural Areas
- Esthetically and Functionally Poor Architectural Design
- Inadequate and Shoddy Building Construction
- Imminent Fire Hazards and Sewage Disposal Problems Resulting from Lack of Planning and Zoning in Subdivisions and in Mountain Areas of the Front Range
- Flood Control
- Endangered Animal Species
- Loss of Wildlife Habitat
- Loss of Fishery Resources, Water-Oriented Recreation (Swimming, Boating)

INITIAL CRITERIA FOR DETERMINING ENVIRONMENTAL IMPACT DEVELOPED FOR THE NEPA PROCEDURES

U. S. Department of Health, Education and Welfare

Natural Resource Use

1. Land use
    a. Surface land
    b. Underground space
2. Mineral and fuel use
3. Water use
4. Air use (space)

Pollution

1. Air pollution
2. a. Stable sources
    b. Mobile sources
2. Water pollution
    a. Surface water
    b. Ground water
3. Soil pollution
4. Land pollution
    a. Land structure
    b. Land conture
    c. Land cover
5. Pollution of wetland, desert, tundra and alpine environments
6. Energy (as a pollutant)
    a. Heat
    b. Sound
    c. Electromagnetic waves
    d. Shock waves and wind patterns
7. Waste and storage
    a. Waste production
    b. Waste disposal
    c. Storage of contaminants

Populations

1. Human populations
    a. Density
    b. Distribution
    c. Age characteristics
    d. Genetic characteristics
2. Animal populations
    a. Diversity of species
    b. Density
    c. Genetic character
3. Plant populations
    a. Diversity of species
    b. Density
    c. Genetic character

Services

1. Basic services -- supplying food, water, power and shelter, trash disposal, sewage removal and health care
    a. Distribution of these services
    b. Alteration of the service capacity
2. Human services -- supplying care for the aged, handicapped, mentally retarded and the young
    a. Disruption of these services
    b. Alteration of the service capacity
3. Intermediary systems
    a. Transporation
    b. Communications -- telephone, telegraph, radio (one & two-way), & mail
    c. Economic exchange (not limited to $)
4. Long-range services
    a. Education
    b. Health

Human Values

1. Historic preservation
2. Endangered species
3. Visual environment, odor and noise

Appendix I

GOALS

Planning Goals

One of the major tasks undertaken at the Estes Park Conference was the generation of goals for a master plan effort. The participants were asked to develop a list of possible goals in three areas: the process itself, the document or product (content) of the process, and those who undertake the work of planning.

What follows is in no way a definitive list, nor is it applicable in its entirety in each and every case. However, as with other lists throughout this document, it should serve as a good point of departure for anyone interested in drawing up goals for his own effort.

1. A great deal of emphasis was placed on the process or procedure used for putting the plan together; in fact many indicated this may be more important than the production of the document or other products. The process itself is seen to have the following goals:

- To gain a broad base of citizen support -- an interdisciplinary power base -- through direct involvement of a cross section of citizens in the planning effort.
- To generate an interest among the public for environmental education through publicity, personal contact, and involvement.
- To conduct a massive, statewide environmental awareness education program.
- To clarify, define, and then describe to the public the importance of environmental education.
- To attempt to reduce the unnecessary duplication of efforts and to promote cooperation and improved communication among those in the state working on environmental education.
- To work toward reducing conflicts over environmental education leadership, responsibility, and juristictions.
- To place and then articulate decisions about the future directions for environmental education at the state and local level, thereby facilitating the federal government's ability to be more responsive to local needs and concerns.

2. In terms of the document or other products (content) produced as a result of the effort, the following are goals which seemed to have value:

- To inventory the environmental and related education problems, conditions and concerns of the state.
- To inventory the environmentally oriented needs of the state.
- To inventory the presently available resources and services in the state and determine the level of interest in sharing on the part of those likely to have resources at their disposal in the future.
- To inventory and, to some extent, evaluate current environmental education efforts.
- To determine who has either direct or indirect power over environmental education matters at the state and local level and then work to recruit their participation and support.
- To determine the factors in society influencing or controlling change to which action must be directed which must have support from environmental education.
- To establish the basic sets of goals to be implemented through a statewide effort using the data and information generated to that time.
- To determine and then place in rank order the alternative strategies and methods, along with associated tasks and functions, which could be employed in attempting to attain the basic sets of goals.
- To determine, and then analyze for solutions, the constraints which must be overcome in implementing the statewide program.
- To determine the roles and responsibilities which must be assumed, make recommendations about who should assume them, and gain written assurances from the designated entities that they will or will not assume them.
- To determine the resources and services which are needed to implement the strategies -- both those resources and services presently available and those still to be secured.
- To develop and begin to implement strategies to secure the necessary resources and services.

3. Almost all of the states employed some form of official planning group as advisors and/or staff to aid in the formulation of their plan. Here are some of the goals often assigned to such a group:

- To act as a central planning unit which provides leadership, coordinates and improves communication between environmental education efforts, and makes available direct technical assistance.
- To provide leadership for environmental education in the state, thereby fostering coordination and interdisciplinary cooperation.
- To act as a clearinghouse and thereby make resource and interest inventory information available almost immediately.
- To give credibility to the state's environmental education movement through careful selection of members.
- To take the lead in developing a political and economic power base and an involved and concerned constituency.
- To assess the scope of a state environmental education plan and the possible constraints anticipated in the overall effectiveness of the plan.
- To identify possible goals and objectives for the state plan and for environmental education in general.
- To suggest possible strategies which might be employed.
- To develop and promote plans of action showing what needs to be done, how to do it, and the resources available.
- To assist with and support the efforts of others to raise money through legislative appropriations, grant application, etc., for environmental education.
- To investigate the possibility of involvement by various sectors of society and the roles these sectors would play both in the planning process and in the ultimate plan for environmental education. (Most states identified a variety of sectors as well as the roles they would play in the overall plan.)
- To promote and support various forms of implementation at both the state and local level.
- In general to make recommendations with respect to plan development, possible sources of funding, and implementation.
- To publish and distribute a periodical (journal or newsletter) which up-dates planning efforts, reports accomplishments and setbacks, and holds people's feet to the fire for commitments made.

- To publish and distribute a master plan at the conclusion of the formulation task.

Environmental Education Program Goals

In keeping with the three levels of problems presented in Chapter III, three specific kinds of program goals must be developed.

Level One - The environment and ecological balance. Goals for level one tend in many cases to be so state-specific that they are not listed here. To help in drawing up a list of level one goals, the reader should refer to Appendix H for a listing of environmental problems. Deciding whether or not any of these problems are in fact problems in any given state is, of course, one of the major purposes of a planning effort for a problem-centered environmental education program.

The goals which might apply to the other two levels of problems are more easily presented here. These lists of goals were drawn from the various state documents reviewed. They are in no way exhaustive, but representative only.

Level Two - Citizen awareness, knowledge and understanding, etc.

- To create public awareness, interest, and motivation for action from the general citizenry.
- To create an environmental literacy which should promote a personal environmental ethic among citizens.
- To create attitudes and values which allow for an environmentally conscious citizenry.
- To develop skills, knowledge, and understanding in matters involving the environment and its ecological balance.
- To promote knowledge and understanding of ecological principles and a change in attitudes and values about the environment through personal commitments to life styles which are conducive to maintaining a quality environment.
- To help people hold attitudes, values, and beliefs; skills and abilities; and pertinent knowledge, information and understanding which will result in their promoting, supporting and/or carrying out proper maintenance and/or improvement of the quality of the environment for themselves and for others.
- To help people exhibit personal, organizational, and institutional behavior which results in the maintenance and/or improvement of the quality of the environment.

Level Three - The resources and programs necessary to educate the citizenry.

- To create "total community involvement" in developing and promoting environmental education.
- To promote more effective public and private institutional responses to environmental problems.
- To conduct research and development which will provide a balanced set of judgments and projections of future environmental conditions based on various sets of interrelated environmental problems.
- To identify and/or produce evaluation instruments and implement evaluation strategies to determine program effectiveness.
- To utilize evaluation results to determine program effectiveness in terms of a balanced set of costs and benefits and to make any appropriate modifications and adjustments in the program.
- To develop and conduct training programs for government and non-government personnel or work with others who do.
- To collect, store, retrieve, and disseminate information about the environment (problems, conditions, judgments, and projections).
- To collect, store, retrieve, and make available baseline data about the condition of the environment in a specific area.
- To collect, store, retrieve, and make available information about the condition of the environment at specific intervals subsequent to the baseline data.
- To develop or assist in developing environmental education programs utilizing mass media.
- To develop or assist in developing curriculum and audio-visual and other enrichment material.
- To develop and conduct programs involving the community at large, or segments of the community, in working toward the educational goals utilizing approaches that are consistent with the state's definition of environmental education.
- To develop academic and intern programs.
- To make available facilities and expertise which will enable individuals and groups to conduct research and development to find solutions to environmental problems consistent with the view of the future desirable environmental conditions.

Appendix J

FORCE FIELD ANALYSIS, BRAINSTORMING, AND CREATIVE PROBLEM SOLVING

In decision making, the Force Field Analysis provides a clear display of those forces for or against any particular decision that might be made -- what would lead to a given decision; what would prevent that decision. This method of analyzing involves evaluating the dynamic opposing forces in any given situation.

It becomes difficult to think of resistance to change as simply stubbornness when we examine the many forces within and without an individual, organization or project which are operating both for and against change. We must also recognize that these forces themselves are constantly changing. It helps us avoid simple answers to complex problems -- answers which are worse than useless, because they delude us into thinking we understand the problems and thus stop us from continuing the search for the data we need to understand them.

In setting objectives and moving toward them, the Force Field Analysis provides one with more technology for understanding resources and constraints, the negatives and positives leading to the implementation of the plan toward a goal or objective.

In conducting a Force Field Analysis it is helpful to assemble a small or medium sized group of interested and knowledgeable people who, given the particular task or effort to be undertaken, brainstorm a list of the forces which are present in the individuals, the organization, or the environment which are for or helping in the accomplishment of the task or effort. The same process is repeated focusing on the forces which are against or opposing the accomplishment of the task or effort.

The diagram below shows how one might set up the chalk board or flip chart paper to record the ideas and other comments made during the brainstorm.

Task Title or Name

Forces For	Forces Against

The focus of a Force Field Analysis is not simply on objective criteria, such as time or money, which might be applied to a decision to determine its effectiveness or appropriateness. It must also focus on the individuals involved, what it is that affects them or influences them in moving in one direction or another, including both internal forces and external or environmental forces.

The Force Field Analysis has great usefulness and broad applicability for the manager. It can aid him in making decisions, help him understand the complexity of forces at work in his organization, and is of inestimable value in providing him with deeper understanding of the complexity of human behavior in and outside the organization.

For those not familiar with the brainstorming aspects of the process described above, the following brief outline may be helpful. The basic idea is to generate, according to the following rules, as many ideas and concepts from the members of the group as possible. Someone must record the ideas contributed on a piece of paper or chalk board so that all the participants can see them and in order to maintain a written account of the work.

BRAINSTORMING

RULES FOR SUCCESS

B = BUILD ON OTHERS' IDEAS	Let the ideas of others stimulate your own thinking.
R = RESERVE JUDGEMENT	Don't take the time to examine or evaluate any of the ideas as they flow. Anything and everything goes!
A = AIM FOR QUANTITY	The more the better! Don't worry about duplication, overlap or some similar idea.
I = IMAGINE WILDLY	No idea is too absurd; let your mind wonder and wander freely. Don't hold ideas back that are out of the ordinary. Rewards are for the far-out ideas. Creativity begins at the outer limits of the expected.
N = NO KILLER PHRASES	Avoid saying things like: That won't work. How absurd. They won't buy that. What a stupid idea. We've already tried that. It's against policy. We've never done that. That's ridiculous!

There are a couple of final steps that one might take to complete the Force Field Analysis and to move toward doing something with the data generated.

First, using the list of brainstorming forces complete the four steps listed below:

1. Rank order them by severity or importance.
2. Cross out the UNIMPORTANT FORCES, and those that are neutralized by equally strong opposing forces.
3. List the NEGATIVE FORCES. These are the ones which must be dealt with and overcome.
4. List the IMPOSSIBLE FORCES. These will have to lived with. It will be necessary to learn to cope with and negate the results of these which can not be removed or neutralized.

Now, using the list of Negative Forces isolated from the list in step 3 above, begin to design strategies for mitigating, removing or counter-balancing these forces.

One way to carry this out would be to view the Negative Forces as problems and submit them to a creative problem-solving process such as that depicted by the eight steps listed below.

CREATIVE PROBLEM SOLVING

1. Problem identification or recognition.
2. Definition and redefinition of the problem.
3. Exploration of possible approaches, perceptions or interpretations.
4. Collection of data about the problem in preparation for solution.
5. Development of criteria for evaluation of solutions.
6. Generation of possible alternative solutions.
7. Analysis and evaluation of alternatives.
8. Testing, verification, feedback.

Appendix K

TECHNICAL ASSISTANCE, TRAINING, USE OF MASS MEDIA

Technical assistance is a complex function. To work well it must combine technical expertise and subject knowledge with assistance skills. Too often people with technical skills and/or subject competence are not helpful; in some cases such "assistance" has been damaging. The purpose of any technical assistance effort should be to provide technical expertise and subject knowledge in such a way as to facilitate the continued growth and development of the person helped to the extent that he becomes self sufficient.

The following paper, prepared for use with CRE's technical assistance efforts, presents the basics of this approach. The two resources used are Carkhuff and the community development techniques called "Movimento de Criatividade Communitaria" developed by Vladamier De Gregorio of Brazil.

The several references below may be useful in gaining a fuller understanding of the community development approach. The two volumes by Carkhuff are, we believe, the best available on the personal aspects.

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ENVIRONMENTAL EDUCATION TECHNICAL ASSISTANCE

by

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Technical assistance, simply defined, is "helping persons, institutions, and communities involved in environmental education (EE) activities identify and make use of resources and expertise available to them locally or from other sources" (EE Handbook, 1973). In order to fulfill even this definition requires, among other things:

1. A viable means for those needing help to make contact with those providing assistance. Such an effort requires an active process because most passive means of availability (e.g., libraries, resource centers, ERIC) have failed.
2. The Technical Assistance (TA) entity must have knowledge of resources (people, materials, programs, etc., including USOE/EE pilot-demonstration project results).
3. The delivery of relevant resources must be insured.
4. Those needing help must have the ability (or the system, the means) to use the resources well -- especially people resources. (Use of consultants is generally very bad and often a waste of time for both parties.)
5. Resources have to know how to be a resource. (Even professional consultants waste time and don't provide all that they really have to give.)
6. Identification of needs and of new resources is continuous. (New resources keep popping up and project experience often surfaces more needs but not necessarily more sophistication and skill in how to meet those needs.)

An assumption often made is that Technical Assistance can be administered through training. Without denying the validity of training for solving problems or meeting needs, it is often overdone. First and foremost is the ability of TA people to help people help themselves. Thus, the TA is himself a systems planner/designer who knows how to apply a participative planning approach to any EE activity. He also serves as an access to resources. This function involves some other assumptions.

1. It is a continuous process -- even with a given program.
2. Being a TA involves a body of specialized knowledge and a set of specific skills that are separate from training, teaching and learning.

3. The TA must serve as energizer and catalyst working to expand the numbers and impact of EE programs within the geographic area in which he works.

The TA must have human relations and facilitation skills. Those who possess these skills will be more likely to aid in the growth and development of the people with whom they are working; those who do not, actually risk causing a deterioration of conditions. "Those who can help, seek to populate the world with helpers; while those who cannot, populate the world with helpees."* Carkhuff has isolated eight dimensions of the helping relationship, which are personal skills of effective human relations:

Facilitative Interpersonal Dimensions
- Empathetic understanding
- Respect
- Warmth

Facilitative and Action-Oriented Dimensions
- Concreteness
- Genuineness
- Self-disclosure (congruence)

Action-Oriented Dimensions
- Immediacy
- Confrontation

Only by applying these dimensions together with the appropriate technical skills (e.g., design, training, evaluation) and/or subject expertise (e.g., marine ecology, organic chemistry, geography, economics) will the TA role be one which really renders technical - assistance.

The most critical element in promoting an expanded EE effort is motivation. The way to structure motivation into EE is through need satisfaction. It is not simply to train people in the concepts and principles of ecology and the education process. EE can therefore develop viability and success and increase its impact according to a strategy in which specific individual and group needs and problems are focused upon through design and implementation of relevant EE activities.

The TA, working with an existing program or assisting in getting a new program started, should follow the seven-step participative planning approach outlined on the following page.

This means that the TA does not expect those with whom he works to be competent in his set of planning/design skills or to know specifically the names and location of resources. Instead, the teacher is expected to teach, the curriculum developer to develop curriculum, and the community worker to work in the community.

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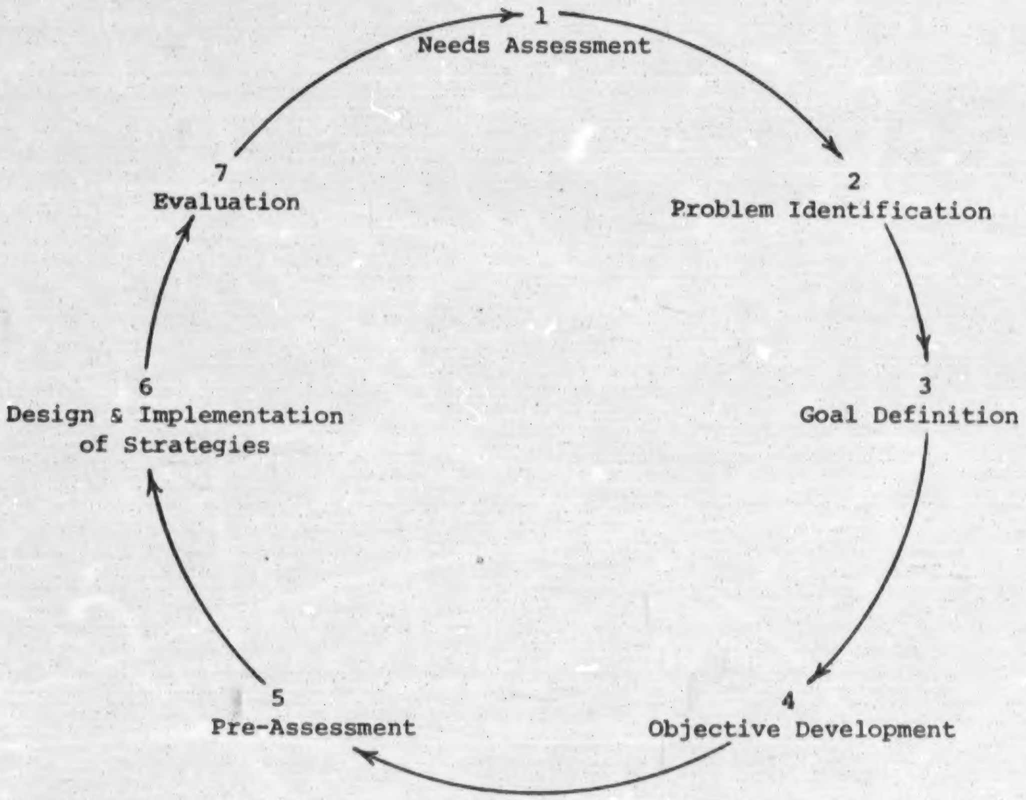
*Robert R. Carkhuff, Helping and Human Relations, Vol. I, Holt, Rinehart & Winston, Inc., New York, New York, 1969, p. 145.


1
Needs Assessment
2
Problem Identification
3
Goal Definition
4
Objective Development
5
Pre-Assessment
6
Design & Implementation of Strategies
7
Evaluation

The process can best be illustrated by an example from Colorado:

A group of teachers have come together who are interested in doing more environmental education. They initially indicated they wanted to work more closely together and to share ideas. They do not want more money, but they do want more clout in their schools and to do a better job of teaching.

Working with a TA, the group participated in a needs assessment. The TA provided the structure and the mechamisms, and the teachers (with help from students, etc.) provided the data. The same procedure was followed in problem identification. The TA then used the data collected to write a set of goals for these teachers and started constructing some objectives. He checked out both of these with the teachers and then produced a final set of goals and objectives for use with this group.

In this case, the goal and objective setting process served as the pre-assessment. (In other cases, pre-assessment would be a separate function.) The TA suggested a set of strategies which the teachers could use to meet the objectives. The teachers are now deciding which strategies they want to employ -- only one of which is training. The TA will then locate, contact and introduce the resources called for in the strategies chosen.

Finally, evaluation will occur: Evaluation of the extent to which the needs were met and the problems solved and evaluation of the extent to which the resources were useful (a critical element in any TA system).

The needs assessment/problem identification may then be repeated and the entire cycle gone through again. The critical point, however, is that the teachers were and are only expected to improve upon their basic function -- teaching. They did not become program designers, planners, etc. Further, relevant use of the available resources was maximized. Finally, because those people are having their needs satisfied, there is evidence that motivation is being increased. Teachers are already expanding their own efforts, and slowly they are getting additional teachers involved.

TRAINING

Training, as it is useful to those associated with environmental education planning, covers the full range of training situations and learners from in-service teacher training to the training of Technical Assistance personnel in "helping" skills. The planner may also wish to delve more deeply into the basic training elements from needs assessment, through selection and use of appropriate methods, media and material, to evaluation and feedback.

In our opinion, the single best, handy and practical reference for both the experienced and inexperienced trainer is:

> Craig, Robert L. and Bittel, Lester R. (ed.), Training and Development Handbook, sponsored by the American Society for Training and Development. New York: McGraw-Hill Book Co., 1967.

This book is, in effect, a state-of-the-art report on the subject of scientific training and development. Its practical value is enhanced by the fact that each chapter is written by a practitioner in the field. It covers training methods, organization, planning, budgeting, records, and even the legal aspects. Many of the key chapters contain useful bibliographies. The book does not, however, cover the full variety of situations which might be faced by the environmental education planner; thus it may require some imagination in the application of specific techniques.

In addition to this Handbook, Robert Mager has written four books tremendously useful for training as well as for a number of other applications. Published by Fearon Publishers/Lear Siegler, Inc., Belmont, California, they are:

> Preparing Instructional Objectives, 1962
> Developing Attitudes Toward Learning, 1968
> Analyzing Performance Problems, 1970
> Goal Analysis, 1972

Additional resources that might be useful, especially for some of the audiences and situations not covered by Craig and Bittel, are listed on the following page. With respect to these references, a simple distinguishing difference between training and education is: Training is a teaching-learning situation where the outcomes and the time are clearly fixed; education has openended outcomes and more-or-less unlimited time.

Flanagan, John C., "The Critical Incident Technique," Psychological Bulletin, LI, No. 4, July 1954.

Flanagan, John C., "Individualizing Education," Education, XC, No. 3, February-March 1971.

Glaser, R., "Psychological Bases for Instructional Design," AV Communication Review, Winter 1966.

Glaser, R., and Nitko, A.J., Measurement in Learning and Instruction. Learning Research and Development Center, University of Pittsburgh, Pittsburgh, Pa., March 1970.

Kelly, Earl C., The Workshop Way of Learning. New York: Harper and Bros. Publishers, 1951.

Schein, Edgar H. and Bennis, Warren C., Personal and Organizational Change through Group Methods. New York: John Wiley and Sons, Inc., 1965.

Smith, R. G., "The Development of Training Objectives." The George Washington University Human Resources Research Office Bull. 11, June 1964.

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Stone, James C., Breakthrough in Teacher Education. San Francisco: Jossey-Bass, 1968.

Wight, A. R. and Casto, Glendon, Training and Assessment Manual for a Peace Corps Instrumented Experiential Laboratory. Denver, Colorado: Center for Research and Education, 1969. (PC Contract 25-1708)

MASS MEDIA

The best treatment we have seen of the problems and the potential of mass media is:

Sandman, Peter M., "Mass Environmental Education: Can Media Do The Job?" University of Michigan, School of Natural Resources, 1973 (mimeographed).

This paper presents specific recommendations for using mass media for environmental education and provides some very useful insights into how to deal with mass media personnel. It also contrasts the advertising model of public persuasion with more convential educational approaches.

Other written resources for the use of mass media include:

Clevenger, Theodore, Jr., Audience Analysis. New York: The Bobbs-Merrill Company, Inc., 1966.

Feringer, F. R., The Future of Puget Sound: A Design for Environmental Quality through Community Involvement, Western Washington State College, Bellingham, Washington, 1970.

Harvard Business Review, Consumer Motivation Series. Cambridge, Massachusetts: Harvard Business Review, 1965.

Johnson, Nicholas, How to Talk Back to Your Television Set. New York: Bantam Books, 1970.

McLuhan, Marshall, Understanding Media: The Extensions of Man. New York: Signet Books, 1964.

Minnick, Wayne C., The Art of Persuasion. 2d ed. Boston: Houghton Mifflin Company, 1968.

Station WQED, Drugs in Western Pennsylvania, A Proposal for Community Mobilization by Public Television Station WQED, Pittsburgh, Pa., September 28, 1970.

University of Indiana Foundation for Educational Television, ETS (Educational Television Service) Program Service: Programming Reports. (Gives formats for innovative minority and other programming being broadcast today.)